

# THE CULTIVATOR.

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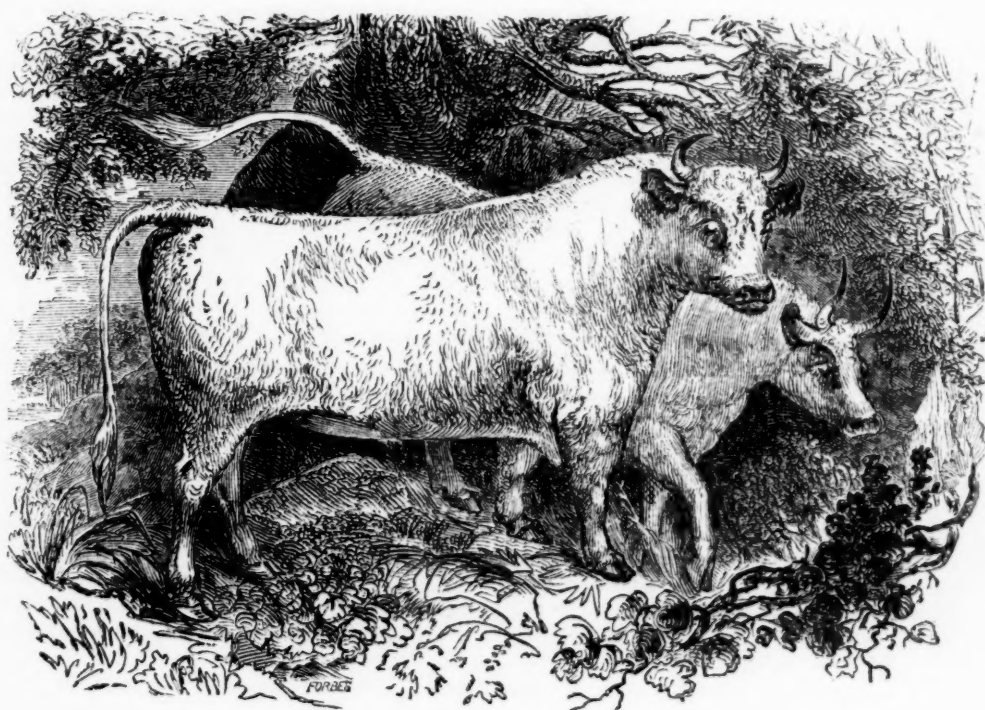
"TO IMPROVE THE SOIL AND MIND."

SERIES.

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**THE CHILLINGHAM WILD CATTLE.**

The history of British Cattle is a subject of interest to us, from the fact that they constitute the source from which our own stock of the same species has been chiefly derived. In investigating this history, we find that at the time of the invasion and conquest of Britain by the Romans, under Julius Cæsar, fifty years before the Christian era, the ancient people of that country possessed great numbers of these animals. Besides the large herds which were kept more or less in a state of domestication, and afforded support to the inhabitants by their milk and flesh, many roamed unrestrained in the extensive forests.

The origin of these cattle has been a subject of much speculation. Whether the wild stock was really indigenous to the country, existing there before it was peopled by the human race—whether the tame stock was derived from the wild—or whether the latter originally sprung from a domestic race brought into the island by some of the early inhabitants, of whose origin and migration we have no account, are questions which cannot be positively answered. At the earliest period to which the history of Britain reaches, it is certain that men and cattle were found there, and we have good reason to believe, that the lineal descendants of both exist at the present day.

Three distinct tribes or stocks of cattle appear to have existed in the British Islands, from the earliest times: viz. 1, the Long-Horns, which originally occupied the low flat lands of England, and similar parts of Ireland, and were remarkable for the enormous length of their horns, their bulky frames and thick hides; 2, the Middle-Horns represented by the cattle of Devonshire, Herefordshire, Wales, and the Scottish Highlands of which the wild stock of Chillingham Park, Northumberland, are considered the type, and 3, the Poll-d or hornless cattle, the originals of which are probably represented by the wild stock of Chatelherault Park, Lanarkshire, Scotland.

As we before remarked, there has been considerable discussion in regard to the origin of these wild stocks, and the relation which they sustain to the present domestic British breeds; but we are acquainted with no author who appears to have investigated the subject so deeply, and who has written upon it so elaborately as W. C. L. MARTIN, in his Treatise on the Ox, which forms the first part of a work now in course of publication, entitled "Knight's Farmers' Library, and Cyclopædia of Rural Affairs."

Mr. MARTIN first gives a very interesting description of the various extinct species of ox, the bones of which

are found in various parts of the old continent, including Britain, and compares their characters with the races at present existing. He examines the idea which has formerly been entertained, that our domestic cattle, including the wild stock alluded to, are the descendants of the ancient Urus, a huge and fierce species of wild ox, which formerly inhabited the uncultivated districts of Europe; and he shows clearly that the present races are not only entirely distinct from the Urus, but from every other species of fossil ox which has hitherto been discovered.

Mr. M. is inclined to regard the Chillingham and Chatelherault cattle rather as *feral* than as originally wild, being in a similar condition to the semi-wild cattle of South America, which are known to have sprung from a tame stock, introduced and turned loose in that country by the Spaniards, soon after its first settlement. We think this opinion is based on very reasonable grounds. His principal arguments against the position that this is a wild species, naturally, are, that it "exists no where as a free denizen of the forest—is not found in the wilds of Central or Eastern Europe"—is only kept in England like deer, within the bounds of a park and that it is, beyond doubt, specifically identical with the domestic race, the ancestors of which, in remote times, are believed to have roamed over the whole of Europe and the adjacent parts of Asia.

Some of the circumstances connected with the position that these cattle were formerly emancipated from a domestic state, are given in the following extract:

"Let us remember that there was a time in which Western Europe received its first tide of colonization, and that at that time man possessed flocks and herds. When Cæsar landed on our shores, he found the Celtic tribes in the possession of the dog, the horse, the ox, and even the domestic fowl. Had they not carried these animals along with them in their early migrations, sedulously preserving them while they hunted down the wild and ferocious? We think so; the urus is extirpated; it was so in Britain in Cæsar's time; and the aurochs [Lithuanian wild ox or bison] is reduced to a few individuals, protected by imperial mandate. But the ancient Britons had tame cattle in abundance, and among these a white breed peculiarly valued; this breed was long maintained, and, as may be expected, principally in the mountain fastnesses, never entirely subjected to the dominion of the Romans, nor yet to that of the Saxon invaders."

Authorities are quoted showing that in the tenth century, some of the tame cattle in England were white with red ears, resembling those of Chillingham Park; and it is mentioned that on one occasion a person who had offended King John, sent to his queen a present of four hundred cows and a bull, all white with red ears. It is shown further that the same records which describe the white cattle with red ears, speak also of the dark-colored and black breeds.

Mr. MARTIN concludes, therefore, that in these old accounts, we have evidence of the existence of a valued breed of white cattle; and he remarks that "the descendants of these might, at various times, have become feral; that is, might have roamed in the wild forests, and returned to a natural state of independence; \* \* and of these feral herds, the Chillingham wild cattle may be the lineal descendants, if, indeed, not of the tame race once so much esteemed."

These views are strengthened by the fact that breeds similar to the Chillingham exist, (though not in a wild state,) in other parts of Europe. "In Italy," it is observed, "there is a noble breed of white cattle, the bulls being models of beauty; such indeed, as the sculptured figures of antiquity portray with spirit and fidelity. Herds of this breed graze in the wild solitudes of the Campagna of Rome, tended by vaccari, or herds-

men." It is from this breed that bulls are obtained to gratify the savage taste of the population, by the exhibition of bull-fights.\*

The characteristics of the Chillingham cattle are given by CULLEY, in his "Observations on Live Stock," as follows: "Their color is invariably of a creamy white, muzzle black; the whole of the inside of the ear, and about one-third of the outside, from the tips downwards, red; horns white, with black tips, very fine, and bent upwards; some of the bulls have a thin upright mane, an inch and a-half or two inches long. The weight of the oxen [not bulls] is from thirty-five to forty-five stone, fourteen pounds to the stone,—[490 to 630 lbs.] The beef is finely marbled and of excellent flavor. From the nature of their pasture, and the frequent agitation they are put into by the curiosity of strangers, it is scarcely to be expected they should be very fat; yet the six-year old oxen are generally very good beef; from whence it may be fairly supposed that in proper situations they would feed well."

Their habits are thus described by Mr. MARTIN:—"These cattle are extremely shy and savage; and at certain times the bulls are very ferocious. The cows conceal their young in the dense fern and underwood; and it is dangerous to approach the lair; for should the mother perceive the approach of an intruder, or the herd be alarmed by the bellow of the calf, an impetuous attack from the former, or even the whole troop is the immediate consequence. Formerly these cattle were hunted with all the pomp and circumstance of the chase in the olden time; but from the frequent occurrence of accidents, the practice has now been adopted of the park keeper selecting his individual, and striking it down with a well-directed rifle-ball."

The semi-wild cattle of Chatelherault Park, Scotland, (the *Bos scoticus* of some writers), are somewhat different in their characters from those of Chillingham. "These feral cattle," says Mr. MARTIN, "are larger and more robust than the Chillingham; the body is dun white; the inside of the ears, the muzzle and hoofs black instead of red, and the fore part of the leg from the knee downwards is mottled more or less with black; the roof of the mouth and the tongue are black, or largely spotted with black. The cows, and also the bulls, are generally polled or hornless." Those which are castrated generally have horns. Though dun is the prevailing color, it is stated that calves are sometimes dropped which are "off the markings," as it is termed, and in such cases the color is black, or black and white mixed. It is said the breed never shows but these two colors.

On comparing this stock with the Galloways, there is evidently considerable affinity between them, and it is not improbable that they had a common origin. In the latter breed the dun color was formerly not uncommon and is even now occasionally seen; while, as has been mentioned, the black sometimes appears in the wild stock.

There can be no doubt of the antiquity of the Chatelherault or Hamilton breed of cattle; both history and tradition inform us of a similar race which in remote times inhabited the forests of Scotland. They were hunted as "beasts of chase," and the noble, though somewhat perilous sport has been thus alluded to by SCOTT:

" Mightiest of all the beasts of chase  
That roam in woody Caledon,  
Crushing the forest in his race,  
The mountain bull comes thundering on."

\* Dr. KNOX, in the ninth volume of the Scottish Quarterly Journal of Agriculture, gives it as his opinion that the Chillingham cattle are descended from an ancient Italian breed, introduced by the Romans.



### "MANURES—THEIR NATURE AND ACTION."

The April No. of the *Cultivator* has been received, and I have perused the article on "Manures—their nature and action," by J. M. WARD. And I fully agree with him that "the right understanding of this subject is the foundation of all correct and profitable farming." And I frankly admit, that for many years I was of the same opinion of Mr. Ward, in regard to the very great value and importance to the farmer of the *nitrogen* in his manures. Impressed with this opinion, I have reasoned and talked to farmers of its use—I have written articles for publication upon this subject, and with a small box of "genuine Peruvian guano" in one hand, and a box of slaked lime in the other, I have lectured and illustrated to hundreds of farmers and others, of its great value for their growing crops, and the importance of fixing this volatile substance.

But by the force of numerous well attested facts, aided by study, practice, observation, and the application of the "sober second thought," I have been constrained to very greatly alter that opinion—in fact, to abandon it.

I have no favorite theory to advocate, no pride of opinion to sustain, only as far as truth will sustain me. I can, and do, most fully appreciate Mr. Ward's good and benevolent motives in giving his views upon this subject through the columns of the widely circulating *Cultivator*—his object was to further the great cause of Agriculture—to enlighten the path of the practical farmer—to point out to him a way to increase his profits by a more economical use of the means already within his reach. In giving my views so opposite to his—for either Mr. W. or myself, are greatly mistaken in this matter.) I claim from him the same measure of charity, that I have meted out to him, in reference to motives.

I am well aware that M. Bousingault says, manure is valuable according to the amount of nitrogen it contains—and thousands of farmers, theoretical and practical, respond to it, as though it were a *fixed* fact.

Hence arises the *supposed* necessity and great importance of securing it in the manure heap, by the addition of dilute sulphuric acid—gypsum or sulphate of iron, (copperas) all of which substances possess the property of combining with the carbonate of ammonia a volatile salt, and converting it into a sulphate, a soluble, but not a volatile salt of ammonia.

I am also aware of the *absolute* necessity of nitrogen in the cereals—(grain,) and all other food, used for the sustenance of men and animals.

Ammonia is formed by a union of the nitrogen and hydrogen, in decomposing animal and vegetable matter—fourteen parts of nitrogen chemically combining with three parts of hydrogen.

If the advocates of that side of the question mean to be understood that the *nitrogen* in a given quantity, or quality of manure, is its most valuable part, I must beg leave to dissent from them—not in part, but in toto; and further say, that the nitrogen in manure is a substance of *no* consequence compared with the *inorganic* matters of the manure—and still farther, that as large crops can be grown without the use of nitrogenous manures, as can be with them, and I believe there is a vastly greater amount of Indian corn and wheat—(grains requiring much nitrogen in their composition,) grown in the United States, without the use of any kind of artificially applied nitrogenous manures, than there is by the aid of them.

But before proceeding farther, I wish to point out the

analogy subsisting between the soil, the plant and the animal. Chemical research teaches us that some ten or eleven mineral or *inorganic* substances, enter into the composition of all naturally fertile soils. It further teaches us, that these *same* substances are found in the ash of plants, and it clearly establishes the fact, that plants derive their inorganic constituents from the soil, and upon the quantity, relative proportions and solubility of these substances in the soil, depends its fertility, rather than upon the quantity of what is generally termed the organic matter of the soil, viz. humus, vegetable matter, &c. And farther, analytical research has established the fact that the same inorganic bodies are found in the ash of the bone and muscle of animals, and that these same substances have been derived from the food upon which the animal subsisted.

Chemistry also teaches us that four elementary principles enter into vegetable structure, and hence are termed *organic* substances—they are carbon, hydrogen, oxygen and nitrogen. The three first are furnished by the atmosphere in sufficient quantity to meet the demand of the growing plant. To the above statements I feel sure of having Mr. W.'s assent. The nitrogen being the only question at issue between us.

His theory is, "that if we would obtain vegetable products *rich* in nitrogenised principles, we must surround the growing plant with animal or vegetable manures, containing an additional amount of these principles." Another is, "that one of the great problems for the agriculturist to solve, is how to furnish plants with the requisite nitrogen at the least expense"—and "that the *value* of manures in common use may be measured by the quantity of nitrogen which they contain, or their power of forming nitrates."

The above propositions of Mr. Ward, I believe, are wholly untenable, and were I not actuated by a desire to disseminate correct views in the cause of agriculture, I would never expend one drop of ink in attempting to expose their fallacy; and in order to more clearly elucidate my views, I must digress from the question at issue for a short time.

Chemical science has established the fact that vegetable food possesses a three-fold value—1st, bodies containing nitrogen, such as the gluten of wheat, the legumin of peas and beans, and in their chemical composition they are nearly identical with the muscle, lean meat of animals. 2d. Bodies containing no nitrogen, like the starch of the wheat and potato. 3d. Inorganic salts, all of which are serviceable in the animal economy.

"The nitrogenous bodies, from their solution in the blood, form the tissues, the actual organism. The bodies wanting nitrogen contribute by their more or less perfect combustion to the warmth of the animal body, and for the formation of fat; and the phosphoric acid and alkaline earths serve in building up the osseous frame work, besides constituting an essential part of every part of the animal system. Their values for the latter purpose are in proportion to the phosphates the ashes contain."

The nitrogenous and carbonaceous constituents of plants and animals are wholly derived from the four organic elements already named. The oxygen and nitrogen in a gaseous form, compose the air we breathe; oxygen and hydrogen, in certain proportions in a liquid form, compose the water we drink; carbon is charcoal, *dissolved*, or in a gaseous form combined with oxygen; and termed carbonic acid. These gaseous substances

are susceptible among themselves, (and with the inorganic constituents of plants) of forming an infinity of chemical combinations, and of yielding an endless variety of products. 'Tis from the four organic elements that more than 99 pounds in a hundred weight of pine or fir wood are composed. 'Tis from these four substances that all the bulk of an elephant, or any other animal, is formed, that disappears when burned in the fire, and no human research has yet discovered any animal endowed with powers of assimilation sufficiently potent to convert into nutriment, carbon, nitrogen, and the other ultimate elements of animal substance. These elementary materials require the previous and more efficient action of vegetable chemistry; so thoroughly does it elaborate those elements, that little beyond solution and separation is required of the digestive functions of the higher orders of creation. It therefore follows, that animals cannot exist except through the instrumentality and intervention of plants. The soil might exist without the plants, the plants might live and die, though there were no animals to feed upon them. But the animal is, as it were, the creature and the consequence of both. The dead earth, the living plant, and the moving animal, are thus intimately connected.

From "the beginning" it has been decreed that man should obtain his bread by the sweat of his brow, but that *sweat* would have been unavailing, if it had also been decreed that man should have provided in manure the nitrogen his bread contains. Provision was made for this contingency, before "Adam delved, and Eve spun." And here the inquiry comes up, how has provision been made for this purpose? It has been reserved for modern chemistry to answer this question, and we find the answer in Prof. Horsford's letter, published in the *Cultivator* of July, 1847, in which he gives the amount of ammonia in a great variety of soils—not in pounds, but in tons. Something like an average of 8,000 lbs. avoirdupoise of ammonia in a stratum of one acre in area, and one foot deep. The "excavated earth" was taken from a depth below all traces of organic matter. The Illinois prairie soil was brought by a returning German, in paper, from a field that had been cultivated without manure for ten years, and this gave over three tons of ammonia, and the subsoil over two and a-half tons.

Prof. H. asks, "now what farmer ever carted from his manure yard 8,000 pounds of ammonia to an acre of land? One may almost say, what farmer ever carted one-tenth or one-twentieth part of this amount." He further says, "it is obvious that the amount of ammonia spread on fields in the ordinary distribution of barn-yard products, is of *no moment*. The quantity, with usual falls of rain, greatly exceeds in the course of a season any supply by human instrumentality. These results put the question of the *sources* of ammonia or nitrogen out of all doubt."

If plants are supplied with their requisite *inorganic* constituents, and with the right physical conditions, we may reap heavy crops of "highly nitrogenised products," without the aid of stable manure or guano. To sustain his views, Mr. W. cites the Prussian authority. I have no doubt of the different yield of produce by the different manures; but is there any more proof of this difference being occasioned by the ammonia, than there is of its being the result of the phosphates, and other inorganic salts in the manure.

He says: "the more liberal the use (of ammonia) the greater the yield." Petzhold, in his agricultural chemistry, gives the results of some experiments with various salts, and quantities of ammonia. These results seem clearly to contradict the above statement.

Prof. Liebig says, "the amount of nitrogen in manure is a measure for its amount of phosphates, and

other mineral ingredients of the soil. Without phosphates, and without the other mineral elements of the food of plants, the *ammonia* exercises no influence whatever upon vegetable life." And Prof. Nesbit, of the Kensington agricultural school near London, makes the same remark. Now to substantiate the truth of some of the great principles laid down by Professors Liebig and Horsford, I shall adduce a number of well established facts, having a direct and positive bearing upon the question.

Several years since, Prof. Henslow of England, in order to test the value, (if any,) in fixing the ammonia in manure by the addition of gypsum, engaged some fifty or more farmers to institute a series of experiments for this purpose. Each experimenter was to make two compost heaps of manure and other materials according to a fixed rule, (by weight and measure) laid down by Prof. H. The only difference in the heaps one was to have the addition of a given quantity of gypsum, supposed to be sufficient to fix all the ammonia that would be generated during the fermentation of the heap. The two kinds were applied side by side, on various soils and a variety of crops, and the results were carefully noted.

The report\* given by Prof. H. of the result, seems to leave the question wholly undetermined. His conclusions from these experiments—(fifteen in number) are given in this result. "It will be seen that with turneps the effect has been uniformly in favor of the gypsumed dung. With the straw of wheat the result is twice in favor of the gypsumed dung, once against it, and in one case, no difference. In respect to the wheat itself, it is six times in favor of the gypsumed dung, and six times against. The practical inference to be deduced from this part of the inquiry, favors the idea of using the gypsumed dung for a turnep crop, but shows that it produces no better effect than *ungypsumed* dung upon a wheat crop." [This certainly does not tell greatly in favor of ammonia in manure.]

In the *Gardeners' Chronicle*, May 11th, 1844, the editor gives the results of experiments obtained by a friend of his near St. Albans. The object of one of the experiments was to ascertain whether the expense of carting manures long distances could not be diminished by burning the manure and applying the ashes. The editor observes, if his experiments can be trusted, the results are of considerable importance, because it shows that stable litter burnt to ashes, is nearly as effectual as the common bulky manure.

The trial was made, as all trials should be, on an *exhausted soil*, consisting of a heavy loam. Turneps were sown on the 21st of June last, in drills 27 inches apart, and the space occupied by each experiment was exactly the same, viz: about the thirteenth of an acre.

	lbs.
No. 1.—No manure, gross weight of turneps,.....	83
No. 2.—Horse dung, 4 cwt., lime, half a bushel; the lime was slaked and mixed with the dung six weeks before it was put into the soil; this was for the purpose of driving off the ammonia. Weight of turneps,.....	462
No. 3.—Horse dung, 4 cwt., sulphuric acid 2 lbs.; applied six weeks before it was put into the soil; this was for the purpose of fixing the ammonia. Turneps,.....	444
No. 4.—Horse dung, 4 cwt., thrown into a heap six weeks before using,.....	392
No. 5.—Horse dung, 6 cwt., same as above, do.,.....	429
No. 6.—Horse dung, 8 cwt., same as above, do.,.....	513
No. 7.—Horse dung, 5 cwt.; burnt to ashes with free access of air,.....	429
No. 8.—Dung, 5 cwt., burnt with a very limited supply of air until the vegetable matter was burned into charcoal,....	455
No. 9.—Dung, 5 cwt., sulphuric acid, 5 lbs.; mixed with the dung, and then carbonized like the last,.....	417
No. 10.—No manure,.....	70

The editor remarks, "If these results can be relied on, we shall come to the conclusion, 1st, that 5 cwt. of stable litter when burnt, is as good as 6 cwt. of raw

\* Colman's Report on European Agriculture, vol. 1, part 5, page 419.



manure; and 2d, that after all that has been said about the importance of ammonia in manure, the crops are as good where that principle is driven off, as where it is retained by fixing."

Prof. Nesbit, of or near London, gave a lecture before an association of farmers at Trying, England, a year or two since; [reported in *Mark Lane Express*, June 22, 1846;] in which he spoke of the importance of the inorganic or mineral constituents of plants, as found in their ash. A Mr. Dawe, a farmer present, confirmed it by saying, "I have found the ashes of burnt wheat very productive; I had a stack of wheat accidentally burnt, and I have used the ashes for manure; the consequence was, as good a crop as I could have had from guano." Mr. N. replied, "exactly so, in the burnt wheat you had all you wanted."

Liebig says, "the ash of the same species of a plant are the best manure for a crop."

At a discussion "Question," before the London Farmer's Club, as reported in the *Mark Lane Express*, of November 8, 1847: "What evidence is there that dung is deteriorated by drying, &c.," Prof. Nesbit led off the discussion, and from experiments in his laboratory made out a loss of one pound of ammonia per ton; the market value of the cheapest may be estimated at 1s. per pound—a loss to the farmer of 20s. per acre, if 20 tons are applied, if the manure is suffered to become dried. But he has not produced any evidence to show that ammonia is worth a shilling a pound for agricultural purposes.

A farmer present, a Mr. Cheetham, observed, "that without boasting, he could say, that few persons had been more successful in growing turneps than himself. For more than 22 years he had never sown twice nor missed a crop. He said "he was not able to enter into the various chemical questions connected with agriculture, or to discuss scientifically the benefits to be derived from ammonia, but he would mention a fact which seemed opposed to the notion of ammonia being of such very great importance as a manure." Some years ago they were short of manure; his father, who was then a farmer, bought some very old manure which had been lying scattered over a large surface at Stamford. This was turned over when intended for use, and there was sufficient moisture to cause it to ferment, yet at the time when it was applied to the land, it was in appearance little better than barley chaff. Notwithstanding its appearance, however, the crop of turneps was the most splendid that he had ever seen. He began farming in 1822, and having this example before his eyes, he determined using year-old manure.

In the *Mark Lane Express* of January 10, 1848, is a communication by Mr. Nesbit, on the recent discovery of an extraordinary amount of phosphoric acid, in some marl near Farnham, England. It has been observed wherever this marl came to the surface, the hops and the wheat grew almost without manure, and when applied to other lands, the fertility was remarkably increased.

This led Prof. N. to institute a series of most careful and rigid experiments, which resulted in proving the existence of about 5 per cent of bone earth, an extraordinary amount almost unparalleled in the natural or chemical history of soils. Ten tons of the dried marl would be an equivalent for a ton of bones. And bones have been long known as a valuable manure; a portion of their fertilizing properties have been attributed to their organic part, the oil and gelatine, as the last contains much nitrogen. Liebig, a few years since, announced that the good resulting from the use of bone manure, was due to the "bone earth," (phosphate of lime,) and not to the organic part, as generally supposed; this statement was received with disbelief by many. But many accurate experiments have established the fact, that burnt bones are quite as efficacious

for manure, as those not deprived of their animal matter; and burnt bones contain no nitrogen. So, too, when he announced the great economy of dissolving bones in sulphuric acid, and forming the easily dissolved super phosphate of lime, so that 3 or 4 bushels of ground bones thus dissolved would be as efficient as 16 or 20 bushels applied in the ordinary way. This idea was ridiculed by many in England as a "bubble that would burst and be dissipated into air—into thin air." The truth of the above statements have been repeatedly verified, and are fully corroborated by Mr. Colman, page 364, part 8, of his European survey.

In the *London Gardeners' Chronicle* of April 4, 1846, is an interesting table of experiments by Prof. Daubeny with several kinds of manure, upon the turnep crop. But I cannot go into particulars. The result of his experiments proved that a given quantity of phosphorite, or natural mineral phosphate of lime, was as efficient as an equal amount of bones, and that 22 tons of nitrogenous manure per acre, gave but a few cwt. more of turneps than 12 cwt. Spanish phosphorite, entirely destitute of nitrogen. I could cite numerous other facts to prove my position, but I will come nearer home and adduce a few. I regret, however, that I shall from the length of this article, be obliged to treat them in a very summary way.

Many of the readers of the *Cultivator* are aware of the existence of a mineral substance found in New-Jersey and farther south, and known as "green sand," which possesses very valuable properties as a manure. It does not, so far as I can learn, contain any nitrogen, but it does produce very marked effects when applied in certain quantities upon the sandy lands of New-Jersey. And I wish I could get Prof. H. D. Rogers' glowing account of its effects "upon fields where the soil originally was nothing but sand." He says: "A Mr. Wooley manured a piece of land in the proportion of 200 loads of good (nitrogenised) stable manure per acre; by the use on the same kind of soil of 20 loads per acre of the green sand, the crops, clover and timothy, were much the heaviest upon the section which had received the marl. Difference in cost of manuring the land: stable manure \$2.00 per acre, marling \$5. "Land which had been sold for \$2½ per acre, in consequence of the permanent increase in its fertility from the marl, is now worth \$37 the acre." The great value is due to the potassa which it contains.

President Hitchcock, in his "geological survey of Massachusetts," devotes several pages of his valuable report to an account of a kind of marl found in different localities in Massachusetts, which he calls "muck-sand"—but frequently called quick sand. He gives details respecting the good effects of this quick sand, dug from many feet below the surface; and in some instances the good results lasted for 10 to 17 years, fully equal to the best stable manure in its immediate effects, and more permanent.

The great fertility of subsoils, and that dug from ditches, have been thousands of times noticed—even out-producing the most highly manured soils.

The Hon. Dixon H. Lewis, in some observations at a meeting of the New-York Farmers' Club last summer, stated the "best soil he ever had was that thrown out of ditches."

In the last September number of the *Cultivator*, Mr. Editor, in your "Sketches of farming in Western New-York," you mention the great fertility of the subsoil for several feet in depth, on Mr. Johnston's and Mr. Delafield's farms.

"That where ditches and drains had been dug, and the earth which had been taken out was spread over the surface, the wheat, barley and oats were heavier than in any other part of the field." In the present (April) number of the *Cultivator*, containing Mr. WARD's ar-

ticle, there is a communication from Mr. Dox, who mentions ears of corn, 22 inches long, grown on sub-soil raised from a well, and "of some timothy or herds grass growing on a soil that was thrown out in digging a cellar, some of the heads of which were nearly 14 inches long." Now I do not believe, either the Wandering Jew, or Peter Rugg, in all their travels ever saw such ears of corn or heads of grass, grown by the aid of *nitrogenized* manures.

Where do the countless millions upon millions of bushels of corn and wheat grown upon the western prairies, obtain their nitrogen from? Not from the application of nitrogenised manures.

How has the fertility of the soil of Egypt been kept up from hundreds of years before Abraham's time, down to 1848 of the christian era? By annually having restored to it the finely comminuted mineral matters, (by the overflow of the Nile,) to replace those drawn from the soil by the annual crops.

Precisely thus, has the fertility of the alluvial lands on the Deerfield, (Mass.) river, been kept up for more than a century; and so upon others. I have named but few facts compared with what I could cite in this case—but enough to sustain my propositions. So here I rest the matter. LEVI BARTLETT. Warner, N. H. April 10, 1848.

### "IRISH ROSE BUTTER" FOR THE U. S. NAVY.

In our last volume, pages 213, 284, some remarks are made in relation to the subject indicated by the above caption. The indefatigable Secretary of the New-York State Agricultural Society, Mr. JOHNSON, has taken hold of the matter, and has unraveled some of the mysteries with which the business of supplying Uncle Sam's navy with butter has hitherto been enveloped. The results of his investigations are published in the Society's *Transactions* for the last year, from which we gather the following facts.

The navy of the United States requires 60,000 pounds of butter annually. In the proposal issued by the department, it is said—"the butter must be of the description, quality and manufacture of the present navy butter, made in the mode of '*Irish Rose Butter*.' The milk must be thoroughly worked out, and the butter cleansed of all impurities, and extraneous substances, and be put up in seasoned white oak firkins, containing about 80 lbs. each, well and strongly hooped, so as to be perfectly air and pickle tight. Persons offering proposals are required to produce satisfactory evidence that their butter will stand the test of tropical climates, and preserve its sweet and wholesome qualities for years."

From this statement, it was deemed important to ascertain how "*Irish Rose Butter*" was made, if there was any such butter. The secretary therefore opened a correspondence with gentlemen engaged in the butter trade in Liverpool, and in various parts of Ireland. It appeared that most of these dealers never heard of "*Irish Rose Butter*," and that if any is now made under that name, which is doubtful, it is of a quality wholly unsuited to the navy, or for long keeping. A letter to the secretary from a house in Liverpool, says—"We understand that there is *Rose butter*, which is put up with very little salt, and is nearly as good as fresh butter, but it is not fit for export."

No other intelligence was obtained concerning "*Irish Rose Butter*," except that a letter from Clonmel, in Ireland, stated that one of the Waterford houses brands, the firkins of their best quality of shipping butter with a rose. But this is not navy butter. That for the British navy is obtained from Cork, "where a larger quantity of salt is used in the manufacture, and where it is made up expressly for foreign exportation." This butter is packed in good tubs or casks, containing 66 to 70 lbs. each. "The quantity of salt mixed in the making of the butter, to be about one pound of salt to 10 or 11 pounds of butter, and the buttermilk to be well worked out of the butter, without using, however, the hand too much. In packing, care should be taken to pack it as closely as possible." In packing the butter, space is left at the top of the cask for pickle, and at the port of exportation, the pickle is added, with one or two pounds of salt additional, to each cask, to keep the pickle at full strength.

A letter from Clonmel describes the mode of making the celebrated "*Irish butter*" of that neighborhood, as follows:—"Our best makers have large, airy, cool dairies, and churn twice or three times a week, which depends on the heat of the weather. Caution must be used not to allow the cream to be too long in the tubs and pans, or until it gets sour, as the butter will then be inferior and what is termed *cheesy*. The buttermilk must be well washed out of the butter, and when salted, it should be packed firm into the firkin. These, with great cleanliness, are the principal things to be looked after in the manufacture, otherwise your butter will not keep its quality. The quantity of fine salt is three pounds to the firkin, containing about 65 pounds. The butter in this district is made expressly for the London and North of England markets; in the former, at certain periods of the year, it takes precedence of the Dutch."

But the Secretary has ascertained that notwithstanding the terms in the government proposals, that the butter for the U. S. navy, must be "made in the mode of *Irish Rose Butter*," not a word is said about such butter in the contract! In reference to this inconsistency, it is asked—"Why was this so drawn? Was it to prevent those who never heard of '*Irish Rose Butter*,' and knew not how it was made, from offering proposals? It is presumed it must have been inserted through inadvertence on the part of the person preparing the notices. But from whatever reason it was inserted, its effect has been, beyond all question, to prevent persons from offering proposals, who might otherwise have done so."

It has been proved, as we learn from the paper under consideration, that the butter which has been furnished under the proposals alluded to, has usually been what is called "*Orange county butter*," and it is said "the gentleman who has special charge of this department, is of opinion that no butter made out of Orange county will resist the action of tropical climates and preserve its qualities for years."

As the quantity of butter required for the supply of the United States navy on foreign stations, is not less than 60,000 pounds annually, and is continually increasing, the question is considerably important, whether all this butter must be made in the county of Orange? What are the peculiar qualities imparted by the territory encompassed by the boundary lines of that county, that it should be entitled to such pre-eminence? It is admitted that soil, climate, and quality of herbage have an influence on butter; but can the county of Orange claim any special advantages of this kind? It is admitted also, that a large portion of the butter produced in Orange county is of excellent quality; but the question is simply, whether the same skill and attention which is there given to the manufacture, will not or does not produce equally as good butter in other coun-



ties? Evidence enough is already obtained to answer this question affirmatively.

The inquiries instituted by the Secretary of the Society, clearly establish the fact "that a very large portion of the butter marked 'Goshen' [and sold as such] in the New-York market, is actually made out of Orange county;" and, as is observed, it is but justice that credit should be given to the counties where it is made. From the information given by several of the most extensive dealers in butter in New-York, it is found that "there is hardly a county in the State" from which some excellent butter is not obtained. But the Secretary's correspondence shows that from the counties of Chemung, Broome, Chenango, Tompkins, Tioga, Delaware, Sullivan, Ulster and Greene, large quantities of butter are annually obtained of a quality equal to that made in Orange county—that a large portion of it is in fact sold by dealers as "Orange county butter." It is only marked "Orange" or "Goshen" to conform to certain prejudices. One large dealer says:—"The butter made in the county of Chemung is equal to that made in Orange county, and will stand the *southern climate* as well. Also, that made in Tompkins county, is well suited for shipment south, and *stands the salt air as well as any butter we receive here.*" I find that western dairies sell as well as the best 'Goshen butter,' *when sent south, and in many cases better, as it has more color.*"

Another dealer who, we are told, has an establishment in New Orleans, to which he has been in the practice of sending butter from Western New-York,

speaks of the butter from several dairies in Chemung county, which he states has been "sent south," and stands the climate equal to any from the Orange county dairies, and fetches as high a price as any from that county.

Another speaks of a dairy in Chemung, the butter from which for the last fifteen years, has not sold for less, with one exception, than eighteen cents per pound, "and for the most part has brought from twenty cents to as high as twenty-eight cents" for the whole quantity made. He adds:—"there are several dairies in the county that bear the same high character, and *will compare, to say the least, with the best that Orange does, or ever has produced.*"

Now the great fact to which all this information points, is, that good cows, good pastures, good water and good air, with an observance of proper rules in the management of milk and cream, will insure good butter, whether the dairy is located in the county of Orange or elsewhere. In regard to pastures, it may be observed, that rather elevated situations, affording "fine sweet grass and cold springs," would be preferred. Fortunately, in our extensive country, districts which possess all the natural requisites for the production of butter and cheese, are neither few nor small. Both of these departments of husbandry are becoming every year of more importance, and when we consider the great demand which exists for dairy products of prime quality, and the great difference in the price of such and those of inferior or ordinary quality, it certainly behooves all engaged in the business to aim at perfection.

### MEMOIR OF THOMAS GREEN FESSENDEN.

BY F. HOLBROOK.

EDITORS OF THE CULTIVATOR:—The plan adopted in the Cultivator, of giving a short record of the life and character of men distinguished as friends of the farmer, by their able efforts in the promotion of agriculture, meets my cordial approbation; for as you have rightly said,—“the exhibition of such examples cannot fail to exert a salutary influence on society.” We may all learn from the life and labors of such men, that the Agricultural profession is not, as has too generally been supposed, a *menial* employment, but one affording full scope for the exercise of the best intellectual powers. And we further see, strikingly exhibited, the fallacy of the sentiment so generally indulged, that farming is a sort of stereotyped business, long since brought to perfection; and that all we have to do, is to follow the practices handed down through a long line of ancestry, unaltered and unimproved, regardless of all light elicited either from the developments of science, or enlightened practice.

Among the distinguished laborers in the field of agriculture, no one is worthy of more honorable notice than our respected and lamented friend, THOMAS G. FESSENDEN, for fifteen years editor of the *New-England Farmer*. The limits afforded in your journal are necessarily so circumscribed, that we shall not be able to present more than a very brief sketch of the life and character of our friend; but though brief, it shall be the tribute of admiration for his amiable and generous nature, and respect for his many and valuable public services. Biographical sketches of Mr. FESSENDEN were written soon after his decease by N. HAWTHORNE, Esq., and Mr. COLMAN, to each of whom we are indebted for the principal data of this sketch.

THOMAS GREEN FESSENDEN was born in the year 1771, at Walpole, New-Hampshire, and was the eldest of nine children of the Rev. Thomas Fessenden,—a man

of distinction in his profession, and long settled in the ministry at Walpole. His early education was such as the district school of those days afforded. He soon evinced those habits of inquiry and close application which so much distinguished him in after life, and rendered that life so valuable to the agricultural world. His active and inquisitive mind turned to the best account the facilities afforded by his father's library, and so rapid was his progress in study, that, at the early age of sixteen he became himself the instructor of the village school. Most of his time in the summer months, however, was given to labor on his father's farm towards the support of a large family, in moderate circumstances. His dexterity and efficiency in the use of the scythe, in his younger days, was a matter of much honest pride with him in after life; and it was his frequent custom for several years after he left the paternal roof, to spend the haying season with his father, assuming the brunt of the labor himself.

Soon after the age of manhood, Mr. FESSENDEN entered Dartmouth College, where he supported himself by his own industry, without calling upon his father for assistance. This was done mostly by the wages earned in teaching district schools, and classes in sacred music, during the winter months. He was equal to the performance of any of the sacred music of those days, playing one part very efficiently with his bass-viol, and carrying another with his voice; and it was immaterial which part, he being always ready to sustain the weakest.

In his "Jonathan's Courtship," a truly original effusion produced while in College, we have early evidence of that witty and humorous turn which, a few years after, was the source of so many fanciful sentiments and poems. He was remarkable too for his satirical humor, and he possessed a singular combination of the

strange and ludicrous; and yet it was evident to all who knew him that his satire was wholly free from hatred or ill-will, and that it was impossible for a heart so generous as his to indulge any feelings of this kind.

Mr. FESSENDEN graduated at Dartmouth, in 1796, and entered upon the study of the law at Rutland, Vt. with that eminent practitioner, Nathaniel Chipman, Esq., with whom he afterwards formed a connection in business. He was not in his proper element however, in the practice of law, for his ruling taste for literary and scientific pursuits, and his childlike simplicity of character, poorly qualified him to succeed in a profession where shrewdness and tact are so essential.

In the year 1801, a company of mechanics who were interested in some newly invented machine, employed Mr. Fessenden, to go to London for the purpose of obtaining a patent. After arriving there it was found that the machine was destitute of sufficient merit, and his journey proved a fruitless one. He found himself a penniless and friendless stranger in that great city, thrown entirely upon his wits for a support; and here those qualities of satirical humor before mentioned soon afforded him a resource. He became acquainted with one Perkins, the patentee of the famous Metallic Tractors, which were represented as performing the most marvelous and extraordinary cures of various diseases. This humbug had gained considerable favor with the people, although stoutly opposed by the professional corps. At the request of Perkins, Mr. Fessenden made it the subject of a Hudibrastic poem, entitled "Terrible Tractoration," which, for its satirical and strangely ludicrous humor, was much applauded, and won the author quite a reputation. "The poem," says his friend Hawthorne, "professes to be a poetical petition from Doctor Christopher Caustic, a medical gentleman who has been ruined by the success of the Metallic Tractors, and who applies to the Royal College of Physicians for relief and redress. The wits of the poor Doctor have been somewhat shattered by his misfortunes; and with crazy ingenuity he contrives to heap ridicule on his medical brethren, under pretence of railing against Perkinsism. The poem is in four cantos, the first of which is the best, and the most characteristic of the author. It is occupied with Dr. Caustic's description of his mechanical and scientific contrivances, embracing all sorts of possible and impossible projects; every one of which, however, has a ridiculous plausibility. The inexhaustible variety in which they flow forth, proves the author's invention unrivalled in its way. Long afterwards, speaking of the first conception of this poem, the author told me that he had shaped it out during a solitary day's ramble in the outskirts of London; and the character of Dr. Caustic so strongly impressed itself on his mind, that, as he walked homeward through the crowded streets, he burst into frequent fits of laughter." This poem ran through several editions at that time, and a revised edition, with a new satire upon the men and things of the day, was published by the author, in 1837.

In the year 1804, Mr. FESSENDEN returned to New-York city, and soon after commenced the publication of the "Weekly Inspector," a paper chiefly of a political character; he also published a book, entitled "The Register of Arts." He afterwards removed to Philadelphia, where he was engaged in literary pursuits, and published his humorous poem, "Pills, Poetical, Political and Philosophical, by Peter Pepper-Box, Esq., Poet and Physician;" and also his satirical poem, entitled "Democracy Unveiled."

In 1807 or 8, he removed to Brattleboro, Vt., where he had two brothers residing, and edited with much ability, "The Brattleboro Reporter," a weekly and miscellaneous newspaper; and afterwards, at Bellows' Falls, Vt., "The Intelligencer," a paper of like cha-

acter. Here he published "The Clerk's Companion," a book of legal forms; an enlarged edition of "Deane's New-England Farmer," a Dictionary of Agriculture; and "The Lady's Monitor." He was also continually called upon for New-Year's poetical addresses, Fourth of July Odes, &c., &c., and was somewhat engaged in the practice of his legal profession. During his residence in Vermont, his attention was considerably directed to agriculture, and he wrote upon the subject for his paper. Here, his hitherto eventful life and ever-varying fortunes became more settled and prosperous; and in the year 1813, he formed a most fortunate and happy connection in marriage. Mrs. F. was of all others, the person of most desirable qualities to make the life of such a man useful, prosperous and happy. Aided by her excellent judgment and care, the earnings of his persevering labors, resulted in a comfortable independence for their declining years.

Here, Mr. FESSENDEN won the affection and esteem of all who knew him, by the simplicity and amenity of his manners, his generous and frank nature, and his strict integrity. His application to study was untiring; he never had a moment for idleness, and his memory being remarkably retentive, there could be hardly a subject of importance started in conversation, with which he was not more or less familiar. He was remarkable for his good nature, and many are the sallies of his wit, remembered by his friends. His generosity of heart knew no bounds. The following little incident illustrates his utter thoughtlessness of self, when this quality was called into exercise. When he first removed to Brattleboro,—an entire stranger to most of the inhabitants—he took a morning walk, and coming to the toll-bridge, found there a poor family whom the gate-tender had stopped for the want of money. Mr. F. at once emptied his pockets of all the change he happened to have and let them through, passing along with them. On his return he found himself in a like situation, and it was not without some parleying and explanation that he succeeded in getting through.

In 1822, Mr. FESSENDEN was called to Boston, as editor of the *New-England Farmer*, a weekly journal devoted to agriculture. He edited this paper for fifteen years, or until his death, which occurred November 13, 1837. In this time he also published his "Complete Farmer," his "American Gardener," and edited the *Horticultural Register* and *Silk Manual*. His labors during these years were most assiduous and untiring; it being his habit to devote no less than sixteen hours of the twenty-four to study. As conductor of the *New-England Farmer*, he achieved the crowning labors of his life. The paper had an extensive circulation throughout New-England, and may be said to have "fertilized the soil like rain from heaven."

To this day, we turn over the pages of that journal with admiration for the research those labors evince, and for the great amount of valuable information the volumes afford. As an example of the vigorous yet facile style of his writings for the *Farmer*, we quote the following truthful remarks from his "Acknowledgments to Patrons and Correspondents," at the close of the 12th volume:

"We may, perhaps, be allowed to state that our predilections to the art of all arts, increases in a direct proportion to the attention we bestow on it; for like every thing else possessing intrinsic excellence, the more intimate the acquaintance, the more obvious are its merits—the more we explore the avenues of culture the stronger the perception that its ways are profitable as well as pleasant, and 'all its paths are peace.' And, indeed, the world is apparently now becoming practically impressed with the primary importance of those pursuits which feed and clothe the human race; and to which we are indebted for all which makes life



a blessing, or gives civilized a superiority over savage existence."

At the close of another volume he says:—"We are highly gratified in perceiving that the interest which attaches to the primitive and most important of the arts is every year perceptibly increasing in zeal, knowledge and perseverance. If we still continue thus to press forward, we cannot fail in the common course of events to become not only prosperous as individuals, but powerful, respectable and respected as a nation. Improvements in agriculture are pioneers, heralds and companions of all other improvements. The accurate science and correct practice of tillage alone can precede and introduce the charms, the decorum, the dignity as well as the substantial and indispensable requisites of civilization. If Ceres\* did not sustain the Graces, as well as support Minerva† and her retinue, they would disappear, as the tints of the setting sun fade in the sky when evening advances."

During a residence of several years in Vermont, in later life, Mr. FESSENDEN added much practical knowledge of agriculture to that acquired in his youth; and this, combined with his thorough and extensive acquaintance with all the writers of merit, on practical and scientific husbandry, and his perfect readiness of pen in imparting all the information upon any subject in hand which could be elicited from books, fitted him admirably for his editorial duties. This paper had the patronage and support of men of the first intelligence and influence throughout the New-England States, and it is not perhaps too much to say, that no other single agent contributed so much to the advancement of a more enlightened practice in husbandry, as the *New-England Farmer*.

Many are the pleasant visits we have enjoyed at the house of our kinsman and friend. However tired and worn down with his numerous labors, he ever became cheerful upon entering his quiet and happy home; and we always expected some sally of his wit during these hours of social life. He had a great fondness for sacred harmony, especially the wild and stirring fugues of Billings, Holden, and other early American composers; and seating himself at the table of a Sabbath evening, with bass-viol in hand and his young friends around him, would lead off in fine style, carrying with his voice any part we assigned him, and feeling, apparently about as young as any of us. He was peculiar at times, for his absence of mind, and it was not unusual for us to pass him in the streets of Boston so deeply absorbed in study, as to be wholly unmindful of the world around him.

Mr. FESSENDEN had the confidence and friendship of a wide circle of intelligent and influential men in Massachusetts interested in the promotion of agriculture, and he is still remembered by them with sentiments of affection and respect. These sentiments have been beautifully expressed in the following extract:—

"On the 13th day of November, 1837," remarks Mr. Hawthorne, "while on my way to Boston, expecting shortly to take him by the hand, a letter met me with an invitation to his funeral. He had been struck with apoplexy on Friday, three days before, and had lain insensible till Saturday night, when he expired. The burial took place at Mount Auburn on the ensuing Tuesday. It was a gloomy day, for the first snow storm of the season had been drifting through the air since morning; and the 'garden of graves' looked the dreariest spot on earth. The snow came down so fast, that it covered the coffin in its passage from the hearse to the sepulchre. The few male friends who had followed to the cemetery, descended into the tomb; and it was there

that I took my last glance at the features of a man, who will hold a place in my remembrance apart from other men. He was like no other. In his long pathway through life, from the cradle to the place we had now laid him, he had come—a man, indeed, in intellect and achievement—but in guileless simplicity, a child. Dark would have been the hour, if, when we closed the door of the tomb upon his perishing mortality, we had believed that our friend was there!"

"It is contemplated to erect a monument, by subscription, to Mr. FESSENDEN's memory. It is right that he should be thus honored. Mount Auburn will long remain a desert, barren of consecrated marbles, if worth like his be yielded to oblivion. Let his grave be marked out, that the yeomen of New-England may know where he sleeps; for he was their familiar friend, and has visited them at all their firesides. He has toiled for them at seed time and harvest; he has scattered the good grain in every field; and they have garnered the increase. Mark out his grave, as that of one worthy to be remembered both in the literary and political annals of our country; and let the laurel be carved on his memorial—stone—for it will cover the ashes of a man of genius."

This design has since been realised, by the erection of a marble monument, bearing the following appropriate inscription:

THOMAS GREEN FESSENDEN, died Nov. 11, 1837, aged 65. This monument is erected by the Massachusetts Society for promoting Agriculture—by the Horticultural Society of Massachusetts—and individuals, as a testimony of respect for the literary talents and acquirements of the deceased, and his untiring labors in promoting the objects of the above institutions."

We close with the following tribute from the Rev. W. B. TAPPAN, written a few days after Mr. F.'s burial.

#### "THOMAS GREEN FESSENDEN.

Mount Auburn, as a miser, gathers wealth  
From the world's heap; not artfully, by stealth,  
But shamelessly and open. Sits he now  
Alone in winter's drapery, his brow  
Circled by solemn trees; and contemplates  
His gains, and those to come with which the Fates  
Shall swell his hoard, already rich with store,  
We knew not how to part with. Yet one more  
Is added. Moral excellence and wit,  
Talents not idly hid, worth that would sit  
Gracefully on a king, the crown adorning,—  
These have been stolen, this violence hath our mourning.  
Yet, Plunderer! there's hidden in thy womb  
Nought but the casket, which at trump of doom,  
Thou—saith the oracle of God—shalt render,  
The jewel lodged above! who'll tell its splendor?"

**TO KILL ALL WEEDS.**—The leaves are the lungs; no plant can grow if it cannot breathe; and if it is prevented from breathing, it must soon die. Some persons dig for feet into the soil to eradicate roots; a much easier way, is to keep the tops buried, by repeated plowing, or by a thick coat of tan or sawdust. Elders and willows may be very easily killed without grubbing, by merely keeping them closely cut to the surface, and pulling off all the sprouts as they appear. Cut them off in the spring or early summer, burn the brush upon the stubs, and then remove the sprouts during the season, and the work is completed.

**TRAINING OXEN.**—It is well to learn oxen the art of *backing*. Begin with an empty cart on a descent; then on a level; then with a gradually increasing load; then uphill. Cattle may in this way be taught to back with facility a heavy load.

\* The goddess of Agriculture.

† The goddess of Wisdom and of the Liberal Arts.

## SKETCHES OF FINE FARMS.

Having lately had an opportunity of spending a few hours at some fine places in Dutchess county, we submit a hasty and necessarily imperfect sketch of some of the objects which met our attention.

The farm of J. W. WHEELER, Esq., of Hyde Park, consists of 300 acres. It has been in his possession for five years, but at the present time about 200 acres are rented. The natural situation of the place, on the east bank of the Hudson, is very pleasant, and Mr. W. has done much to improve and beautify it. His buildings are tasteful and neat; his grounds are handsomely laid out, and mostly enclosed with stone walls of the best kind. It is designed that all the outline fences shall be of stone, and that the few internal ones which are necessary, shall be of iron.

The soil of Mr. WHEELER's farm, generally, is of rather a loose texture, somewhat gravelly in places, underlaid by slate rocks. It is well suited to the production of Indian corn, rye, and most kinds of fruit common to the latitude—especially apples and pears. There is a large number of pear trees, and we have never seen finer or more healthy ones, or those that were better set in fruit.

The principal products of the farm are fruits, Indian corn, rye, potatoes and hay. The grain is chiefly used in fattening beef—the other articles are sent to the New-York market. Most of the cattle to be fattened, are commonly purchased in the fall, fed through the winter, and sold the following May or June. Oxen are employed in farm labor. They are at all times well fed, and not being over-worked, they get in high condition, and with only a little extra feeding, are turned off for beef at good prices. Mr. W. showed us six handsome and well-fattened oxen, which had been sold to be taken away in the month of June, at an average of a hundred dollars each—estimated equal to nine dollars per hundred for the nett beef, or four quarters.

All the stables and stock yards are constructed to prevent the waste of any portion of the excrement, liquid or solid. Large quantities of good manure are made by the stall-fed cattle and other animals, and it is all carefully saved and applied to the land in the most judicious manner. The yards are kept covered with muck and litter, and the manure is made up into compost heaps, where the decomposition is so regulated, and the gases so absorbed, that there is no loss of fertilizing elements. It is commonly applied to hoed crops, and is thoroughly incorporated with the surface-soil.

Mr. WHEELER has some Ayrshire, and some Durham cattle. He prefers the former for the dairy. He has two Ayrshire cows and a bull which were imported, and several young animals of their produce. They are good stock. Only one of the Ayrshire cows had a calf the past spring. This one ("Effie,") and a "Dutch" heifer were put on trial together, for butter, for a few weeks, and the two yielded from twenty-two to twenty-three and a-half pounds per week. Few cows, of any breed, carry more good points for the dairy, than the Ayrshire last mentioned.

We were highly pleased with the good order, neatness, and the general evidences of good management displayed on the premises of Mr. WHEELER, and regretted that circumstances did not permit us to make a longer stay. It was also with much regret that we were compelled to forego the pleasure of a visit to the fine places of Mr. FULLER, Maj. ALLEN, and Mr. BUTLER, all situated in the same neighborhood.

From Mr. WHEELER's we passed up the river bank to Ellerslie, the residence of Wm. KELLY, Esq., near Rhinebeck. This place, consisting of about 600 acres, has been in Mr. K.'s possession about seven years. In its original purchase and subsequent improvement, he has made large expenditures, and whether considered in reference to its natural position and features, or the embellishments of art, there are but few places of equal beauty and interest. The mansion stands on elevated ground, but is flanked on the north and west by beautiful woods, which effectually screen it from the boreal blasts. The prospect to the south is delightful, embracing a view of the river and country on both sides, for the distance of nearly twenty miles.

The appearance of the grounds is highly attractive. On one side are extensive carriage ways and walks, leading for miles through groves and forests, and taking in their course points from which we have the finest park-like views; while on the other side, lie broad green fields, whose gently-varied surface presents to the eye a rich and extensive rural landscape.

The farm is divided into lots of from fifty to a hundred acres, and where a division of these lots becomes necessary, moveable iron fences are used, which, as they cannot be seen at a distance, preserve, unbroken, the view of the grounds. The soil is mostly a clay loam, more natural to the production of grass than grain. Gypsum operates favorably, and by the use of this article every year or two, and occasional top-dressings, with compost, a great portion of the farm is kept constantly in grass. A large field was shown us which had not been plowed for upwards of thirty years, and it had a stout crop of excellent quality. The herbage of the pastures is likewise much improved by moderate dressings of plaster. Hay is the principal product of the farm, of which it yields from 300 to 400 tons annually, mostly sent to the New-York market.

Considerable live-stock is, however, kept on the farm, and in this department Mr. K. has spared neither pains nor expense to obtain the best. We saw sixteen cows, full blood and grade Durhams, all of which were good, and several of them uncommonly fine both in points and dairy qualities. Among the herd was a very fine imported Ayrshire cow—"Kitty."\* Mr. K. showed us some very promising young stock of various ages, and several yoke of staunch working oxen. A pair of nearly full blood Durhams were of large size, and apparently of great strength.

Mr. K. has a flock of about sixty South Down sheep, several of which he procured from the best flocks in England, at a cost, in some instances, of two hundred dollars per head. Many of them are of first rate quality, and show that they have been bred with care and judgment.

Mr. K. has shown great liberality in the distribution of such of his fine animals as he could spare, among the neighboring farmers, at prices not higher than would have been paid by the butchers.

The old out-buildings of the farm are in good order, but not in all cases of the most approved style. Mr. KELLY is erecting on different parts of the farm, several spacious barns for storing hay; and next season he designs to take down the barns where the cattle are kept, and put up others of the most convenient and substantial kind, in their stead.

\* This cow has since been purchased by E. P. PRENTICE, Esq



## PARING AND BURNING.

Paring and burning the soil, as a means of increasing its productive powers, has seldom been practiced in this country. The reason may, perhaps, be, that in our older settled districts there is not a very large proportion of the kind of land which is most benefited by the process; while the cheapness of new lands has offered such inducements to improvement as tended to check expensive outlays on the old.

But we are satisfied that paring and burning may be practiced with good results in many situations, and that it would prove a profitable mode of improvement. The soils most suitable for this process, are those containing a large proportion of inert vegetable matter, combined more or less with clay. But on all soils overgrown with pernicious plants, paring and burning, if properly performed, may be successfully practiced. It not only effectually kills all living vegetation within two inches of the surface, but destroys the greater portion of the seeds which infest the soil. We have seen fields covered with couch-grass, (*Triticum repens*,) Johnswort, wild turnep, &c., rendered very clean for several years, and made to produce fine crops of grain, grass, or root-crops, by the course alluded to.

We find in a late number of the *Farmer's Magazine*, an excellent paper on the subject of paring and burning, the most important portions of which, with some additional suggestions, are condensed in the following article.

The method of paring and burning consists in paring with a spade or plow, the surface of any lands that are covered with a coarse and overgrown faggage or brushwood, into pieces not exceeding two inches in thickness, and afterwards drying and reducing them to ashes by burning. The operation is most conveniently performed by men with spades made for the purpose, which are formed with a thin blade of about one foot in length, terminating in a sharp point; and the left side of the blade is provided with an upright coulter, which cuts the slices in a straight line, and they are turned off to the right hand side by a twitch which the man gives to the implement. The handle or shaft is about seven feet in length, with a curved bend rising to the upper end, on which is placed a cross-hilt about two feet in length, by which the workman holds the implement and guides the process of cutting. The implement is so constructed that the spade lies nearly flat on the ground, when the hilt rests against the thighs of the workmen, which are guarded by boards or by pads of wool fastened on straps while he propels the implement through the tough surface.

Various kinds of implements to be worked with horses or oxen have been constructed for the purpose of paring the soil; but by none of them can the work be so effectually done as by manual labor, and there are but few situations where the hand plow would not on the whole, prove most advantageous.

The cost of paring and burning, varies according to the price of labor, and the condition of the land on which the operation is to be performed. The expense for paring alone, in England, is set down at an average of 20s. or about \$5 per acre, and the cost of burning and spreading the ashes at the same sum. It will be seen, therefore, that it is only where land and produce are comparatively dear, that the process would prove remunerative. But in the vicinity of our large markets, it is by no means uncommon to incur a much greater expense per acre for manure alone, than would be required for paring and burning.

Paring may be done at any time from spring to autumn. The turfs are exposed to the sun and air with the earth side up for a few days, and are then set on edge by bracing two pieces together. If the weather is favorable, the slices will soon be ready for heaping; which is performed by placing any combustible materials on the ground and piling the turf over them until a heap of moderate size is formed, when the fire is applied below. A smothering fire is much preferred, and the outside of the heaps should be kept so close that the flame does not burst out. In some cases the sods are piled in large heaps, and in others in small ones, only a few yards distant, but in either case the fire should be kept close. Small heaps, when the turf is so dry as to burn readily, incur less labor and expense both in piling and spreading the ashes. The quantity of ashes is on an average about 2,000, bushels per acre. In dry seasons, and where the pared surface is light and fibrous, or covered with vegetation, the sods may be burned as they lie on the ground, without being heaped: and good pastures have been formed by sowing clover and grass seeds on the ashes, without plowing, where no useful grass or plant had before appeared.

After the sods are burned, the ashes are to be spread, and it is recommended to allow time for cooling them before the land is plowed, which is usually done with a thin furrow, and rendered fine by harrowing before the seed for a crop is sown. It is preferred to keep the ashes near the top of the ground, for the purpose of affording immediate nourishment to plants.

But though the immediate effects of paring and burning are generally admitted; the practice is opposed by many on the ground that it lessens the vegetable matters of the soil. This objection is answered by stating that it is not a destruction of the vegetable matter that is sought, but only a *charring* or torrefying of the materials exposed to the fire—violent burning being carefully avoided. In opposition to the opinion that the staple of lands is reduced by this operation, and that sterility ensues, may be quoted the authority of many of the most eminent cultivators, who burned the surface of their calcareous, silicious, and argillaceous soils in succession, and at no great intervals of time, and have always reaped great advantages, and never perceived any detriment, but a great improvement accrue to the land.

Green cropping with sheep feeding, was regularly followed, and dung and composts occasionally applied; and the land being thus improved was invariably laid down to rest with a sowing of good perennial seeds, and depastured for several years with sheep. On soils of better quality, the rest in grass would not be so necessary; but a duly enriching process of cropping must be adopted to afford the animal and vegetable matters to the soil on all improved and cultivated lands that contain the vegetable matter in a reduced and tender form, and in a finely blended and comminuted state.

The great advantage in burning consists in land producing by that process a manure for itself, and in producing crops for the future acquisition of that indispensable article. The opponents of burning nowhere give the system of cropping, and the future management of the land that is said to be reduced to a state of barrenness by that process, nor is there anywhere detailed a comparative and decisive proof of the inferiority of paring and burning to the mode of fallowing and rotting the surface on lands or fields of similar quality, and which have been subjected to the same treatment af-

ter improvement, nor the expense and produce of each mode from the breaking of the old turf till the land was laid out to grass. The great part of the controversy rests on mere matter of opinion, and a more fallacious mode of judgment cannot be adopted than to condemn any practice from the results of imperfect performance; for if strictly followed, it would condemn many of the most approved and useful practices in life; and anything that can be effected to good purpose by others, must not be disallowed by those who are incapable of the execution and unwilling to be taught; nor must they allow their avarice and prejudices, narrow judgment and want of energy and exertion to give a limit to the capacities of other men who may see more clearly and can act more vigorously, and who can bring more judgment and discrimination to bear on the point.

Scientific men have reasoned from very obscure causes in regard to the effects that result from paring and burning land; it is thought that clay imbibes nutritive properties from the atmosphere, and that carbonic acid, which in combination with iron is injurious to plants, is expelled by burning. But in the present state of our knowledge of these subjects, we may very properly re-

fer the effects to a diminution of the coherence and tenacity of clay soils, and to the conversion of inert vegetable and other matters into active manures.

But the formation of charcoal may perhaps be reckoned the chief benefit, and some persons have added the oxygenation of the clay by the heat emitted, and also the mechanical effect of the fire in dividing and attenuating the soil; but as the process is above ground and of short duration, and the under-soil is unmoved much effect may not be produced that way. But it has ever been observed that vegetation is very luxuriant on the places where the heaps are burned, and where no ashes are allowed to remain on the ground. There the cause of fertility must arise from the effect of the fire; and the best ashes that could be found on a field have been carried and spread on pared ground where no ashes had been burnt, and they produced effects much inferior to those on the places where the burning had been performed and the ashes subsequently spread. It has been most judiciously observed that there is a cause or agent in burning, and that a most powerful one, "which escapes the retort of the chemist and the rationale of the theorist."

## HORTICULTURAL DEPARTMENT.

CONDUCTED BY J. J. THOMAS.

### SUMMER APPLES.

A considerable number of new or newly introduced varieties of the apple have excited the attention of fruit growers, and to furnish the information which is often sought by those but little acquainted with them, we subjoin short descriptions of a number with a statement of their qualities. Figures, with full descriptions of some of the finest will be given during the season.

**GARDEN ROYAL.**—A roundish, even and regular, red striped apple, the stem slender, and calyx large and open, and both but slightly sunk. The flesh is very tender, of fine texture; moderately juicy, and of a very slightly sub-acid, pleasant flavor. It is not so rich as the Benoni, nor quite so acid,—is more regular in form, not quite so much of a yellowish cast, and duller in color. It promises to be a fine addition to our list of early apples. It is a native of Sudbury, Mass. Very productive.

**EARLY JOE.**—A figure and description of this excellent variety, was published in the Cultivator last autumn. It undoubtedly stands at the head of the list of all moderate sized mild-flavored apples. It is much smaller than Williams' Red,\* but evidently superior to it in quality. In texture, it considerably resembles the Summer Rose. The growth of the young trees is slow—the tree a most abundant bearer, the branches being sometimes literally hid by the trusses of fruit, without diminishing its fairness or quality. Its origin was in East Bloomfield, in Western New-York.

**RED ASTRACHAN.**—This very showy foreign apple, although it has attracted considerable attention, is only known to a limited extent. It is rather large, often quite large, roundish, slightly flattened and remotely conical, a fine deep brilliant red, with a slight bloom. It is a fine grower, good bearer, and ripens only a week or two after the Yellow Harvest. Were it of fine quality, it would therefore perhaps stand without a rival, but it is rather coarse in texture, and austere in flavor. It will doubtless prove valuable as a market fruit, where fine appearance often eclipses quality.

\*Generally regarded as one of the very best summer apples.

**EARLY BUFFINGTON.**—Apple medium in size, and ripening about the time of the Sine Qua Non, or two weeks after the Yellow Harvest. It is rarely equalled when well ripened, in its fine texture and excellent sub-acid flavor. It is flat, obscurely ribbed, with a short stem, skin very smooth, clear light yellow, often with a brownish blush; flesh yellowish white, very tender and delicate, and compact. It is decidedly superior in quality to the Yellow Harvest and Summer Rose, and and is perhaps only equalled by the Early Joe. It is however, a moderate bearer, which lessens its value. It is believed to have originated in the vicinity of Philadelphia.

**VEDDER'S PIPPIN.**—Medium in size, flat, somewhat ribbed, light greenish yellow in the shade, but nearly covered with bright red stripes, dots and clouds; stem short, thick, flesh white, delicate, profusely juicy, with a pleasant and excellent sub-acid flavor. Though not so rich in flavor as some, it is decidedly first rate in quality, and is an abundant bearer every alternate year. First brought to notice in Cayuga county, N. Y. It ripens near the end of summer.

**BEVAN'S FAVORITE.**—This apple was first described in Holfy's Orchardist's Companion, a few years ago, and very highly commended; but it was either greatly overpraised, or else is sadly degenerated in Western New-York. After three years' trial in bearing, we cannot place it higher than second rate. It is a very handsome red-striped apple, but only moderate in flavor, and too hard ever to be pleasant.

**Remark.**—Erroneous conclusions relative to the real merits of new varieties, are often drawn by those who receive specimens of the fruit from a distance. Those of mild flavor, as the Early Joe, Garden Royal, and Hawley, which often lose a part of their flavor by a conveyance of several hundred miles, are considerably diminished in excellence, and their real character thus remains unknown. On the other hand, those of the too acid flavor, as the St. Lawrence, Red Astrachan and others, are rather improved than injured by lessening their acidity.

(To be continued in next number.)



### Experiments with Copperas on Sickly Foliage.

The day after the receipt of the Cultivator, which contained some statements relative to the beneficial effects of a solution of sulphate of iron, (copperas,) on morbidly yellow foliage, I made a preparation of the salt by dissolving 1 drachm in a gallon of rain water. I say *rain* water, for some hard waters, as lime stone water, will rapidly decompose the sulphate, and make the experiment less satisfactory. This solution I sprinkled over about fifty strawberry plants at one application; and the next day, and the day after, I applied the same amount to them, and waited for the result. Twelve days have now elapsed, and much of that period has been very rainy. The soil of the bed is composed of rotted chips, leached ashes which contained lime, and pig-pen manure. Soon after transplanting the vines, the leaves began to fade to a sickly yellow; some, indeed, became almost white, and some plants died. All these morbid effects I would have ascribed to the soil, had I not discovered that some plants left in a former bed of ordinary garden earth, where they last year were healthy, had assumed more or less of the same yellow hue.

A day or two after the last application of the solution, the ground became obviously of a yellowish brown color, from the decomposition of the sulphate of iron. The rains probably interfered much with any effects which the immediate application of the solution to the leaves may have otherwise had; at the same time that the copperas, (180 grains in all,) by those very rains was more likely to be washed down within reach of the roots, than in a dryer state of the atmosphere.

Again, I took up one of the worst plants which had not been treated with the solution; and after washing off all the soil from its roots, potted it in common garden soil. This case was a desperate one, for the plant had but six leaves, not half an inch long, and nearly white. Call this No. 1. Another plant, stunted and with yellow leaves, was dug up, washed, and placed in a solution of several grains of copperas, in two oz. of water, and left for four or five hours; and then common earth was added to absorb the solution, and in this slush it has been left till now. Call this No. 2. A third dwarf plant, with decidedly yellow leaves, was treated similarly, except that the soil added to the solution in which the roots were immersed, was taken from the strawberry bed in which the sickly plants grew. All these pots have been almost constantly drenched by the rains alluded to, and have had the benefit of but little sun; if, indeed, under the circumstances, the sun's strong rays would have been beneficial. Now for the results:

The fifty plants treated with the solution, have now, at the expiration of twelve days, assumed a considerably greener hue than those of the other half of the bed which were left untouched, for the purpose of comparison; and to determine whether any change which might take place in the experimental plants, might not be due to the coincidence of other agencies as the weather, or the recuperative powers of the plants. The difference in the two halves of the bed was very perceptible to three persons, who were not informed of my motive for requesting their judgment, until they had expressed it. Their judgment was not biassed.

In plant No. 1, now, after eight days, there is no striking change.

In No. 2, there was a decided improvement in five days, the leaves becoming of a lively green color, which they still retain.

The third plant has been but three or four days under trial; but it is now perceptibly improving in verdure.

I will remark, by the way, that a young walnut tree

(*Juglans nigra*), two young coffee bean trees, (*Gymnocladus canadensis*), two Catawba grape vines, and one Elsinboro' grape vine, all of which were transplanted into the bed in which my sickly strawberries are, (except the walnut, which came up from a nut planted there,) are in a thrifty condition, while two or three *Cassia marylandica* plants, some parsley, onions, &c., transferred to the same bed, have some of them perished, while others remain stunted.

I shall continue my experiments as occasion calls for them, having received encouragement enough to do so, from the results of the foregoing trials with the solution of copperas. JNO. T. PLUMMER. Richmond, Ind., 5 Mo. 22nd, 1848.

### The Orchard—Renovation of old Trees.

MESSRS. EDITORS—Among the many visible improvements which are progressing with railroad speed, at the present time, the cultivation of improved varieties of fruit is beginning to be felt as a matter of growing importance. The change which has taken place in public feeling, in regard to this subject, is truly wonderful and agreeable. Let us look at the contrast which a few years furnish in this particular. Formerly apple orchards were scattered abundantly over the country, but what were their products? They yielded just such fruit as nature inclined them to yield. Not one tree in fifty, probably produced anything agreeable to the taste, while the stomach rose in utter rebellion, against their unsavory and sickening qualities. Consequently, public opinion in those days very nearly coincided with that of a certain squaw, who said "what fools Adam and Eve were to eat the apple from the forbidden tree! For her part she would much rather have it made into cider." Our apples, unpalatable to man, and almost obnoxious to beasts, were made into cider. Every cellar was furnished to overflowing with the article, and what could not be stowed at home, was taken to the distillery, and manufactured into brandy, a portion of which was returned and placed by the side of the cider casks for the future use of the farmer.

The temperance reform came, and a new and more cheerful feature was given to this state of things. Distilleries were seen going to ruin, because farmers would not furnish them with the raw material for the manufacture of *blue* ruin; and even distillers, many of them men of conscious integrity, saw the wrongfulness of manufacturing an article of such fatal consequences to the human race, were glad to close the fountains that poured out streams of liquid fire and death.

A serious difficulty arose, however, at this point of the passing state of things. The fruit was, for the most part of an inferior quality;—its value for stock had not been learned, and therefore could not be appreciated, and consequently, what trees existed, beyond the necessary number to furnish fruit for family use, were, in too many instances, deemed fit only for the wasting fire. Consequently, it was not unusual to see whole orchards nearly destroyed root and branch, to give the land to what was then considered, more valuable purposes.

Here our farmers committed an almost inexcusable error. Had they waited only a year or two, until the value of apples, both for stock and market, was fully determined, and then grafted these trees which were prematurely doomed to destruction, with choice varieties of fruit, they would not only have added an increased value to their estates by adopting a new means of increasing their "annual revenue," but have conferred a benefit upon others who would have become partakers of the luxury their fields afforded, almost too great to be appreciated.

The value of apples for domestic animals is being

more and more appreciated. Horses, horned cattle, swine and geese, are all ready to test their excellence, as articles of food; and man finds in them a *healthful* and agreeable luxury. Their *value* increases with their excellency and keeping qualities. Of course, the very *best* varieties are the best to raise for every purpose.

It has become a prevailing opinion with some, that their orchards are *too old*, ever to experience any renovating influence, consequently, they are not worth grafting, and the only way for them is, to put out new trees and let the old ones pass away.

It is certainly a very good policy to set new orchards, and every farmer who has none but old trees, "the early settlers," should be about it with all diligence. But do not despise or neglect the *old trees*. If they have become scrubby in the top, prune with all care. If the bark has become rough and dry with age, scrape it, and if in doing this, you reach the *live bark*, no harm will result. If your orchard has long been in grass, and your convenience will permit, plow and manure, and raise one, two, or three crops of potatoes or corn. If it is not convenient to plow, make a compost of chip manure and common earth, and put a load of this under each tree. Or, if you saw your wood, or burn your chips, use the earth alone, and a good effect will result from it. Apply it as often as you can; if every year, the result will be better. In proof of the utility of doing this, we furnish the following facts:

In the autumn of 1837, in opening an excavation in search of iron ore, the laborers dumped the earth taken from the pit on descending land on which stood several apple trees. We saw them doing it, and looked upon those trees as killed, an anticipation which gave us but little uneasiness, as they had for several years been unproductive, or, if they have borne at all, the fruit was so small and knotty that it was deemed of little value. The carting and dumping process was continued until the earth (earth of no great vegetating power, as all must know who are conversant with the earths and ochres of an iron mine,) was raised around those trees to a height of from twelve to eighteen inches. Contrary to our wise calculations that those trees would die, in the spring of '38 they put forth a rich and beautiful foliage, and although not remarkable for their fruit, they gave a fine growth of wood that season. In '39 the trees were amply laden with fine, fair fruit, increased in size, and improved in quality, from the slight, insignificant productions of former years. These trees have continued annual bearers until the present time.

From this casual experiment, we took a hint, and have already resuscitated several old apparently worthless trees by the method we have prescribed. In '47, particularly, we experimented upon a tree which formerly produced a delicious, sweet, early apple, and, although we applied but one load of chip manure and common earth, mixed in about equal parts at the time of application, which was before the tree blossomed; The effect was surprising. The tree threw out many new shoots, and produced more apples than it had done for many successive years.

The rationale of scraping the old bark lies in this. It becomes dry and compact on the surface, and thereby hinders the expansion of internal parts, so that the sap circulates sluggishly, and hence the vital energy of the tree is checked so as to render it nearly worthless, if its destruction is not complete. This old bark may all be taken off with perfect safety to the inner layer, but in doing this, the greatest care should be used not to penetrate that in the least. After scraping the bark, wash the tree as you would a young tree, with ley, and in a few days you will see the bark assuming a youthful, vigorous appearance. If the wash be repeated often, no injury will result. It cleanses the bark from

impurities, keeps the pores open and free, and effectually destroys all insects that seek shelter there.

Thus much for renovating old trees,—a thing to be desired until new ones can be raised in sufficient quantities to supply the increasing demands for fruit. But no farmer should place reliance upon them for a long period. Age will sweep them away at last, after all efforts to stay its progress. The next generation will need new and larger orchards. Every farmer, therefore, should set himself about raising a new orchard forthwith. We say *raising*, for in what way can a farmer get a hundred apple trees easier than to sow the seed, tend them, and graft them himself. The labor of this is trifling, and if he does it, he will be pretty sure to know what his trees are, whether they are grafted on whole roots or only *pieces of roots*, and can consequently determine much better whether his trees will be trees. He may also know with more certainty than can always be possessed, what the varieties of his trees are. This he may undoubtedly know in purchases from most of our nurseries, but mistakes sometimes occur in this as in other business, for more than once it has been our misfortune to purchase a tree bearing high recommendations, and doubtless valuable *somewhere*, which to us was utterly worthless. Soil or climate may have made a difference, but had we taken scions from some known valuable variety in our own neighborhood, our disappointment would have been remedied, our money saved, and our lost labor turned to good account. Y<sup>rs</sup> respectfully, WM. BACON. *Elmwood, April, 1848.*

#### Experiments in Grafting.

Several correspondents have favored us with the results of their experiments in grafting, which we believe will be acceptable, in a condensed form, to many of our readers.

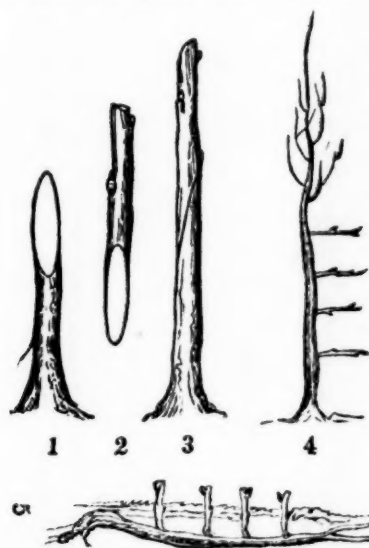
E. M. HOYT, of New-Haven, Vt., gives the following statement of a successful mode of raising a small nursery of apple trees for his own farm:—In the spring of the year, I enrich plentifully with manure a piece of ground near the house, so as to be often under my eye. I then proceed to the orchard or yard where my cattle have been after eating apples in autumn, where I find in their scattered manure apple plants in their second and third leaf. These are removed with the adhering manure and placed in rows. They grow vigorously and require careful weeding, particularly the first season. The second spring many may be grafted, but I usually wait till the third spring, when the plants are two years old.

My grafting process is simple, and if well performed, sure of success.

Being provided with scions, procured in February from trees producing the varieties I desire, also with a quantity of strong brown paper, thinly coated with common grafting wax, the paper being cut into pieces, two by four inches, I cut off the tree obliquely, about 6 inches above the surface of the earth, thus leaving an opportunity in case of failure, to regraft below. I then select from the scions, with which I had previously provided myself, one of nearly a corresponding size, and take off about four inches, including at least two buds. This I match on to the stock, so that the bark of the two parts, shall generally come in contact, then holding them firmly pressed together, wind the paper-plaster around the splice with the wax side inward, drawing it very closely. This work should be done on a sunny day, so that the wax will adhere closely, as it is wound twice or thrice around. Rub a little extra wax around the tree, both on the upper and lower edges of the plaster, to exclude rain, &c. This plaster is all the ligature required as the union soon becomes perfect. After the scion sends forth its shoots, all starting sprouts below the splice, should be removed. As



to the precise time for grafting, there seems to be some discrepancy of opinion; but I prefer that time when the buds are swelling. Still, I have met with success when the leaf began to develop itself.



The two parts should lap on each other about an inch and a quarter. That the shape of the splice may be understood by all, the annexed drawing is furnished; fig. 1, representing the stock; fig. 2, the scion; and fig. 3, the two united before the wax plaster is applied."

**GRAFTING INTO LAYERS.**—The following mode, altho' not wholly new, in some cases may be found to possess advantages over

other modes, where stocks may be scarce.

Take a stock of two or three years old from the seed, split it with a sharp pointed knife, about once in three or four inches; whittle off your scion wedge-shaped, and stick it at right angles through the stem. Apply wax and bandage, bend down the stock and confine it in a trench three or four inches deep; cover up with earth, leave one bud of the graft above the surface, and it is done. Three years since I first thought of and practiced this plan. Nearly all the scions took and grew finely. The spring following, I divided the stock with a sharp knife between each graft and let them stand. This spring I transplanted them, found them perfectly sound where they passed through the stock, and finely rooted. From 100 stocks, you can have from 300 to 400 thrifty grafts—quite a saving of labor and time. A. B. PRICE, M. D. Boon Grove, Porter Co., Indiana, March, 1848.

Fig. 4 shows the appearance of the stock and graft, and fig. 5 the same after the stock is bent down and laid in the earth.

#### Corrections.

In the last number of the Cultivator, an experiment is given in the interesting communication of our correspondent at Utica, where he attributes certain results to the mixing or crossing of the seed of beets and carrots.

The experience of scientific horticulturists has established certain limits to the power of crossing in plants. This process usually takes place between varieties of the same species, as one variety of the apple with another, or one melon with another. It also takes place, in some instances, between certain species of the same genus where they are nearly allied, producing a hybrid. Species widely different in nature are not capable of crossing. The pear and the apple, for instance, and the gooseberry and the currant, although species of the same respective genera, have never been known to intermix. Now, the carrot belongs to the natural order Umbelliferæ, and the beet to the natural order Chenopodea; they are not only of distinct genera, but of totally distinct natural orders; hence the ruin of the seed in the experiment alluded to must be ascribed to some other cause.

Our Flushing correspondent has fallen into quite an error, in classing the "seventeen year locust" among "visionary tales." This locust is at this moment swarming in myriads in a large part of western New-

York, after a distinct interval of seventeen years; and we could, if necessary, furnish at least one hundred good certificates that this is the third appearance, after like intervals, in this part of the country. The fact cannot be overthrown, however difficult the explanation may be.

#### Time for Pruning Orchards.

D. SINCLAIR, jr., writes from Cape Island as follows:—"My objection to pruning in the winter is, the frosty winds dry and crack the wound; if delayed till May, the sap would keep it alive till grown over. I have for several years pursued the business of grafting in Canada and the States, and have seen trees that were pruned in the winter on the decay, while those of equal size pruned at another season, were healed. I use a moist and durable composition, bearing the changes of the weather, and will cover the wound until grown off. It consists of—

Beeswax, 1 lb.,  
Tallow,  $\frac{3}{4}$  lb.,  
Rosin,  $4\frac{1}{2}$  lb.

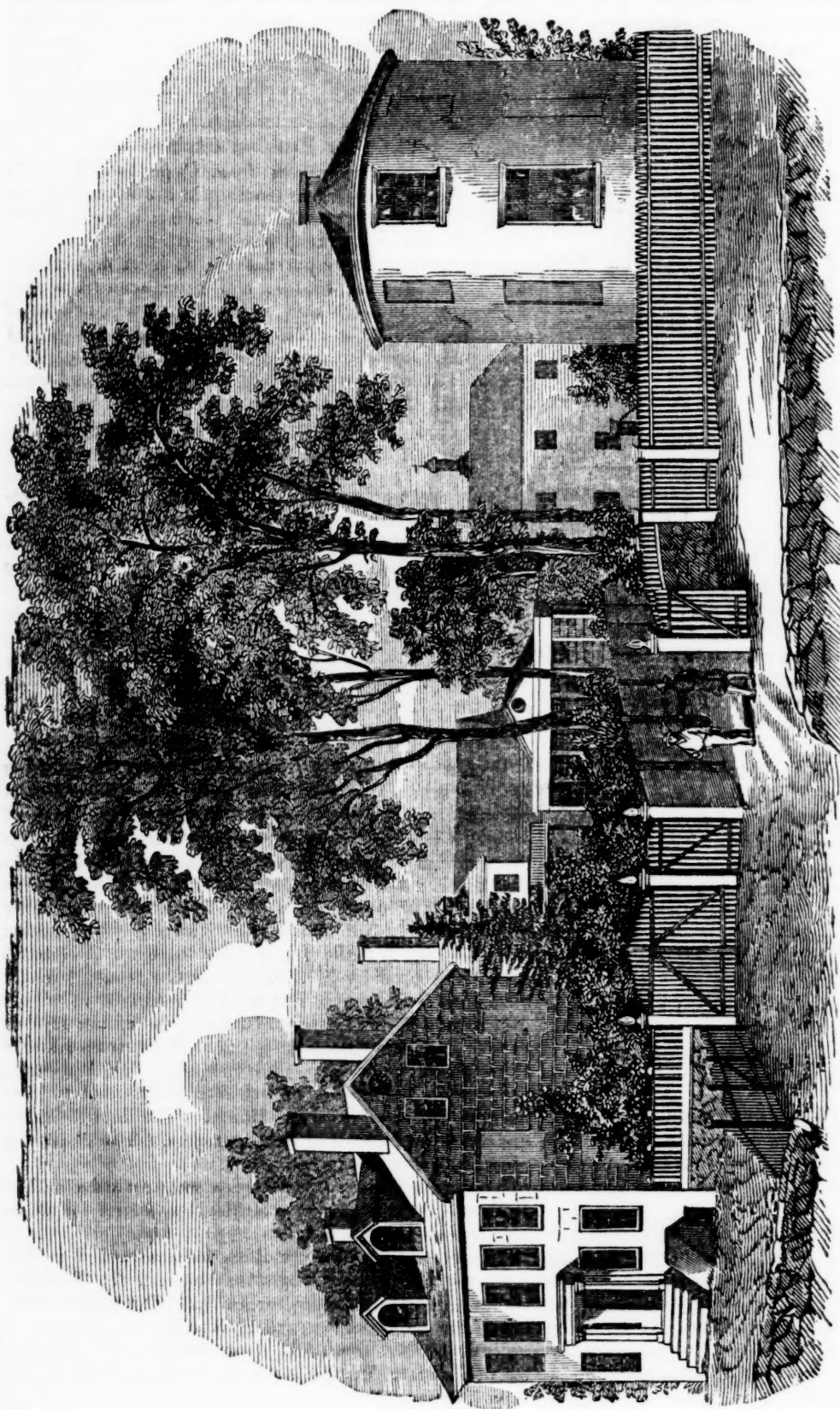
Early summer pruning would, doubtless, be advantageous in several respects, but it usually happens that it is a very busy season with nearly all cultivators. There appears, however, to be no objection to late winter pruning, if the wounds are protected by a suitable water-proof covering: a good and cheap one consists of a mixture of tar and brick dust applied warm; or a better and more expensive one may be made by dissolving as much gum shellac in alcohol as will make it of the consistence of paint, to be kept corked in a wide bottle and applied with a brush.

**HORTICULTURAL EXHIBITION.**—The first exhibition (for the season) of the Albany and Rensselaer Horticultural Society, was held in Albany on the 14th of June. Considering the unfavorable nature of the weather, which for several weeks previous had been unseasonably cold, the display of fruits, flowers and vegetables, was highly creditable. There was a fair show of strawberries, of good quality; also of peas, beets, cauliflowers, (of the latter very superior specimens were presented by Mr. DOUW, of Greenbush,) early cabbages, cucumbers, lettuce and rhubarb, of which Mr. JAMES WILSON presented six stems of the *Hybrid* variety, weighing six pounds; Mr. PRENTICE six stems of the *Victoria*, weighing four pounds. Dr. WENDELL presented a vegetable, called *Hooshung*, said to have been lately brought from China. The tender stems are eaten when cooked as asparagus. The display of roses, picotees, &c., was fine.

The premiums on strawberries were awarded to Mr. DOUW for *Ross Phoenix*, and Mr. PRENTICE for *Bishop's Orange*.

The premiums on vegetables were awarded to Mr. PRENTICE, of Mount Hope, for *beets*; to D. T. VAIL, of Troy, for *early cabbages*; to V. P. DOUW, of Greenbush, for *cauliflowers*; to F. KIESEL, of Albany, for *celery*; to Mr. DOUW, for *cucumbers*; to F. KIESEL, for *lettuce*; to Mr. DOUW, for *peas*; to JAMES WILSON, for *rhubarb*.

The premiums on flowers were awarded to Dr. H. WENDELL, of Albany, for a *centre-table bouquet*; to Mr. PRENTICE, for a *bouquet*; to JAMES WILSON, for a *flat bouquet*, and also to the same for a *round bouquet*; to JOEL RATHBONE Esq., for two *basket bouquets*; to D. T. VAIL, for *centre table bouquet*; to WM. NEWCOMBE, of Pittstown, for a *flat bouquet*; to JOHN WILCOX, for a *floral design*; to JAS. WILSON, for best exhibition of *roses*, and to the same for the best twelve varieties, and the best six varieties of *roses*; to JOEL RATHBONE, for best six varieties and best three varieties of *pinks*; to V. P. DOUW, for best collection of *panonies*; and to J. RATHBONE, for *fuschias*.



### **MOUNT AIRY AGRICULTURAL INSTITUTE.**

JOHN WILKINSON, ESQ. PRINCIPAL.

GERMANTOWN, NEAR PHILADELPHIA.

It was announced in our number for February last, that Mr. WILKINSON, the Principal of the Duchess Agricultural Institute at Poughkeepsie, had made arrangements to remove his establishment to *Mount Airy*, the well known residence of the public spirited JAMES GOWEN, Esq., where the summer term of the Institute was opened on the first of April last. No better location could have been found for such an establishment; and we hope Mr. WILKINSON will find such an appreciation of the importance of his labors, on the part of the public, as will abundantly remunerate him for his devotion to the cause of Agricultural education. [See advertisement.]

**MANURE in or on THE SOIL.**—J. P. Downey, before the N. Y. Farmers' Club, detailed the following experiment. Land was plowed nine inches deep and the manure spread in the bottom of each furrow during the operation. On another piece, the manure was spread after plowing and well harrowed in. On the ground where the manure was deeply buried, the corn was 20 per cent heavier.

This result is erroneously ascribed to the *ascent* of the buried manure. Manure nearly always remains in the soil just where it is put, except where the soluble

parts are carried off by the currents of water beneath the surface, or where the volatile parts pass off by being too near or at the surface. In the above mentioned experiment, the roots of the corn extending several inches downwards, were conveniently fed by the manure buried in the furrow, while the rest of the crop only received the benefit of the surface manure while the plants were very young and the roots short.

A **BALE OF COTTON** is 400 lbs., no matter how large or small the bundles may be in which it is taken to market.



## THE FARMER'S NOTE BOOK.

## Houses of Unburnt Brick.

I have lately been requested by many persons to write an article for the Cultivator on the construction of buildings of unburnt brick. I therefore send you the following, the result of my own experience.

In the summer of 1844, I purchased a piece of land for a nursery, and wishing to build a house to correspond with my business, I concluded to build of unburnt brick, several of the kind having already been erected in the vicinity, which had given good satisfaction. Mine has proved to be warm in winter and cool in summer. The walls are never damp, and there is every indication that it will be durable—more so, at least, than the *clap-board wind castles* which a person meets with every few rods, through the country.

My process for making the bricks was as follows: A circular pit, ten feet in diameter was dug, two feet deep. A floor of inch boards was laid over the bottom, and the pit filled with clay, and a small admixture of sand. Water was then added sufficient to moisten the batch. 'It is better to let the clay soak over night, if it is convenient, as I found it worked much easier. When all was prepared, a pair of oxen were driven into the pit, turned to the right, and driven about till the clay became soft and free from lumps. I then cut six bundles of straw, into lengths of about six inches, and scattered over the clay, keeping the oxen moving moderately at the same time, till the clay and straw were thoroughly mixed together.

I then placed a table, four feet square and three feet high, by the side of the pit, and with the help of a man, proceeded to mould the bricks. The moulds were made of pine boards, nailed together like a box, but made very smooth on the inside. The dimensions on the inside, were fifteen inches long, one foot wide, and six inches deep. Cleats were nailed on each side of the mould, to lift them by when filled. Two moulds were used alternately. The moulds were wet, sprinkled with sand, and placed upon the table. The clay was then shovelled from the pit and thrown upon the table. The clay was taken by the hands, filling the corners of the mould first—dashing it into the mould to make the bricks solid. When the moulds were full, they were stricken off even with the top, with a straight edge board to make them even. They were then placed upon a wheelbarrow and taken to the ground previously levelled and sanded, where the moulds were carefully inverted and lifted from the brick, leaving them to dry in the sun. As soon as the bricks became sufficiently hard they were turned on one edge, which exposed both sides to the air. They were afterwards placed in layers five feet high, under cover, till they were fit to be placed into the wall.

In laying them in the wall, I used clay mortar, mixed in the way as the clay for the bricks, omitting the cut straw. It is necessary in laying the foundations for buildings, to elevate them well above the ground, so that no moisture reaches the bricks from below, and no base should project to impede the running off of the water. I would here state that an aperture about a quarter of an inch wide should be left in each end of the bottom of the moulds, to admit air, as the bricks adhere, without such a precaution. The space could be left by making the bottom of the moulds too short to cover the whole length. The moulds should be washed as often as every third brick is moulded, on account of the soft clay adhering to the sides and bottom.

I offer my house for the examination of any laboring man. It is now covered to the eaves with roses in full bloom, and other climbing plants, forming an object of attraction to the passers by. ISAAC HILDRETH. *Seneca, June 1, 1848.*

## Proper Stage of Cutting Wheat.

The proper time for cutting wheat is a subject which has been considerably discussed, and in regard to which there is probably still some difference of opinion. Many experiments have been made in England, in order to ascertain at what stage the crop would afford the greatest profit. The results all point to an earlier period than has formerly been thought best for this operation. Mr. COLMAN made very particular inquiries of the best farmers and millers in regard to this point. He states as the result of his inquiries, that "the best rule for harvesting, is not when the stalk below the head has changed color, and the circulations have consequently ceased, but when the grain, though it has ceased to yield any milk upon pressure, is yet soft." So far as trials have been made in this country, they are not at variance with the above, and some of our wheat raisers have now adopted the rule of beginning to harvest while the grain is *doughy*. The advantages of cutting at this stage have been briefly given as follows:—"Wheat cut early, affords more grain, yields less bran, makes better flour, shells less in harvesting, wastes less in cleaning, gives better straw, and enables the farmer to do the work more leisurely."

It may be interesting to notice with attention some of the experiments which have been made in cutting wheat at different times. In the 12th and 13th volumes of the Scottish Quarterly Journal of Agriculture, Mr. HANNAM has given the details of several very particular and careful trials made under his own direction. In one instance he cut samples of wheat at five different times, as follows:

- No. 1, was cut a month before fully ripe.  
 " 2, " three weeks " "  
 " 3, " two " " "  
 " 4, " two days " "  
 " 5, " when fully ripe.

Of these lots, 100 pounds of the grain of each yielded as follows:

No.	Flour.	Seconds.	Bran.
1	75 lbs.	7 lbs.	17 lbs.
2	76	7	16
3	80	5	13
4	77	7	14
5	72	11	15

Thus it appears that No. 3, which was cut two weeks before it was fully ripe, was superior to the other lots; giving more per bushel than No. 5, (cut when fully ripe) by 6½ pounds of flour, and a gain of about 15 per cent. on the flour of equal measure of grain: 100 pounds of wheat of No. 3, makes 80 pounds of flour, while 100 pounds of No. 5; yields 72; showing an average of 8 per cent. in favor of No. 3. In grinding, it was found that No. 5 ground the worst—worse than No. 1. There were in No. 5 a greater quantity of flinty particles, which would not pass the bolt. than in any of the other lots. The bran from No. 5 was also much thicker and heavier than that of No. 3.

Mr. HANNAM concludes, that in cutting wheat two weeks before it is fully ripe, there is a gain of fifteen per cent. of flour upon equal measures, a gain of 14

per cent in the weight of straw, and a gain of 7s. 6d. sterling in the value of every quarter (560 lbs.) of wheat.

### Breeding Horses.

I have no desire for controversy, but there are a few points, involving important principles, in Mr. BURNET's second article on breeding horses, (current vol. *Cultivator*, p. 49,) which deserve notice.

Mr. BURNET remarks that "the most profitable horse to breed from is the one that offers the greatest certainty of producing a first-rate foal every year;" and it appears to be his opinion that such a horse can only be found among thorough-breds, for he says—"there really is but little certainty in breeding from any other than a thorough-bred stallion."

*Thorough-bred*, is a technical term applied exclusively to the race-horse, and presuming that Mr. BURNET uses the term in this sense, I confess myself at a loss to perceive the reasonableness of his assumption. Are blood-horses, as a breed, more uniform in their qualities and characteristics than all others? Compare them with the Norman, the Flanders, the English draught-horse, the Welsh, Scotch or Shetland ponies; Are "thorough-bred" horses more *alike* than these? And are the characteristics of "thorough-breds" more strikingly stamped on their progeny, by intermixture, than those of the breeds mentioned?

Is Mr. B.'s conclusion supported by authorities, or by observation, or even by his own reasoning? Mr. BURKE, in his essay on the breeding and management of horses, published by the Royal Agricultural Society, (1845,) remarks, that those who have paid only a moderate share of attention to the subject of breeding, must be aware that there is perhaps no distinct breed of horses, "among which are to be found so many absolutely worthless animals, as among those that are thoroughbred."

But take the characteristic for which the thorough bred horse is most esteemed; that is, ability to run; and what is the "certainty" on this point? What proportion of thorough-breds are racers? Ask Mr. Botts of Virginia, or Col. Cost of New-York, or any other experienced breeder, and see what will be their testimony in regard to the "certainty" of breeding this description of horses.

Look at the great proportion of thorough-breds which become worthless from disease and from lameness, and which from various causes fail in training, and what are they? Read the remark of John Lawrence—"As to the refuse of our studs of race-horses, it consists usually of a parcel of half-gotten, delicate, weak, spider-legged creatures, which it is a misery to see applied to any labor whatever."\*

But notwithstanding Mr. BURNET's position in regard to the "certainty" of breeding the right kind of stock from thorough-breds, he says—"it must be admitted that first-rate thorough-bred horses are so scarce in our country that it is difficult to procure their services." And further on we find the confession, that thorough-bred stallions in this country, have been "for the most part, little, gaunt, spindle-legged animals," which from various defects "have been sold for a song."

The English blood-horse has been in this country for many years, and in some sections, as parts of Virginia and Kentucky, he has, within the last fifty years, been bred in considerable numbers; while in some parts of New York, New Jersey and other states, he has been by no means rare. Why, then, with so much supposed "certainty" in breeding, are "first-rate thorough-bred horses" so "scarce," and poor ones so plenty that they can be bought for "a song?"

Mr. BURNET thinks that none but thorough-bred stallions should be used in breeding carriage-horses. It is unquestionably true that some thorough-bred horses, with the right kind of mares, have produced good carriage horses; but I presume no one will contend that any considerable number of the best of that class of horses in this country, have been thus bred; neither does it appear that this is the course pursued in breeding them in England. The Cleveland bays have there been much esteemed as carriage-horses, and we are informed by YOUATT, that very celebrated carriage-horses, with "strength, activity and figure," have been bred by the Duke of Richmond "by crossing the Suffolk with one of his best hunters."

The saddle-horse, Mr. BURNET says, "should be at least three parts bred." YOUATT admits the advantage of a *strain* of this blood for the saddle-horse and roadster; but at the same time adds, by way of caution, that—"when approaching to thorough-bred he will be scarcely fitted for duty. His legs will be too slender; his feet too small; his stride too long; and he will scarcely be able to trot."

I will simply say in conclusion, that in my remarks about thorough-breds, I have had no reference to *individual* horses. Some of the stallions mentioned by Mr. BURNET I have not seen. I have seen Mr. ALBOTT's *Consternation*, and think he is a good horse—better calculated to improve our stock for *useful* purposes than any blood-horse I have met with for a long time.—*Equus*.

### Scotch & American Plows.

I am in hopes your correspondent W. may draw out some of your scientific men on the subject of the plow. How your northern plows do in the north *countries*, I do not know, but have no kind of doubt but they do well. In these parts they do not give entire satisfaction; the most of them "throw out," without any coulter; that is the beams are so low, that where there is litter or grass, the plow chokes, and is thrown out of the earth. I have some now, made by Ruggles, Nourse and Mason, that remedy this defect, they being some 13 to 14 inches high in the beam. I do not understand why our plows are made to turn so wide a furrow. I am fully aware that our planting community desire to do "a heap" of work with little labor.

Castings are not made heavy enough,—they may do for Yankee white folks, but as sure as "falling off a log," they will not do for southern "darkies."

To insure satisfaction in the use of the cast iron plow, I advise the castings to be made a little thicker, the points not quite so long or so wide, all cutting surfaces to be sharper than usual, and to be made as hard as a flint. There need not be much additional metal used, only to contract the width of furrow slice, say one-horse plow to 8 inches and a two-horse plow to 10. There are some soils where a one-horse plow will do at 9, but I would rather have 5 to 7 1/2.

I have used cast Iron plows; that is, cast iron mould boards, points and shares, for several years. I am so well pleased with them that I shall continue.

My hands will break occasionally, but not compared to some of my friends, who declare they would not use the cast iron plow. I find, instead of paying 25 cts. to sharpen a share, and in two weeks more 25 cts. again and in two weeks more to pay \$1.50 for laying, or probably not lay the first season, but to sharpen at least 3 or 4 times, costing 75 to 100 cts., that one or two points, worth 50 or 60 cts. will do equally well—and no lost time sending to shop. I have as many cast iron points and shares as I have wrought ones,—my cast iron has cost me say 50 cents each, with shares enough for 12 months more, whilst my wrought iron shares

\* Lawrence's Treatise on Horses, vol. 1, page 105.

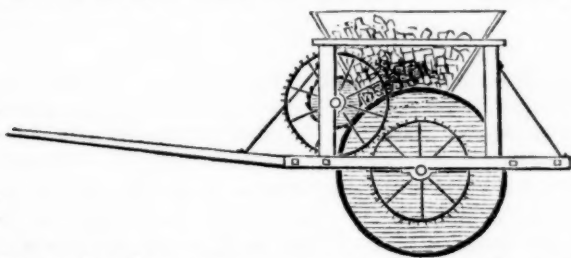


have cost me more than that in my own shop, only rating labor at 75 cts. per day.

If manufacturers wish to sell plows South, they must make their castings of the best iron; chill all wearing surfaces; make them higher in the beam, and plows to cost \$5—this is price enough for a No. 1, one horse plow. Some lands want a mould board like the old Carey plow, standing up and bluff to their work, whilst others want only enough curve to let the earth fall over. M. W. PHILIPS. *Edwards, Miss, April 23.*

#### Coal Grinder and Soil Presser.

Charcoal would have been better known and more extensively used as a fertilizer, if the expense and inconvenience of its application had been less. It has been sufficiently tested, however, to establish the fact, that it is one of the most useful applications to the greatest variety of soils, that has ever been known; it



only remains for us to get up some cheap and expeditious way of powdering and applying it; for which purpose the machine represented in the above cut is intended. It shows a side view of a common roller for pressing the soil, with the addition of a small grooved cylinder so geared with the roller by the cog wheels represented, as to cause the surface of the roller to move much faster than that of the cylinder, thereby adding to the crushing movement, that of grinding, which together, pulverize the coal and drop it in front of the roller. By this operation the roller is dusted and kept free from the adhesion of any earth, and the coal is evenly distributed and pressed into the soil, so that the wind will not blow all the best of it away. Those who believe in applying charcoal to the surface after sowing, will see the utility of this machine. DEAN. *Lyonsdale, N. Y., April 22, 1848.*

#### Value of Guano.

As a top dressing for grass, I have never yet found any thing superior to guano, especially directly after mowing or close pasturing. Spread broadcast from 250 to 500 lbs. per acre, according to the fertility of the soil; and if rain or heavy dew soon follows, the effect will be surprising. If the grass be cut or depastured early in the season, say by the last of June or fore part of July, I have repeatedly noticed that the guanoed patches produced as great a second growth as that of the first. This is a matter of no small consideration to those who have only a small quantity of land, and are desirous that it should yield the greatest possible product. Another consideration, guano gives the turf a greener and richer appearance than most kinds of manure; and will frequently bring in other highly nutritious grasses, which may not have made their appearance in the field for years before.

For Turneps, Guano is a very valuable manure, and has the merit of being extremely disagreeable to the fly. After the ground is prepared, spread the same quantity broadcast as upon grass, either before or after the turnep seed is sown, and then smooth over with a fine harrow, bush or roller, or with all three, as may be most convenient. Some prefer to apply only half the quantity of guano at the time of sowing the seed, and add the other half when the turnep plant is in its first leaf.

They think this method a better guard against the fly, and that the guano proves equally beneficial.

*For Corn.*—At the last hoeing, apply a heaping table spoonful around each hill, about six inches from the stalks, and with the hoe mix it with the soil. It is very effectual in assisting the ears of corn to fill out well with grain; and it adds also somewhat to the growth and nutriment of the stalk.

*For Wheat and Rye.*—As a top dressing for these crops, at the time of or after sowing, guano has proved itself equal to the best of manures.

*Strawberries and other fruits* delight in guano. It increases the size of fruit of all kinds, and adds much to its delicacy and flavor.

*For Various other Crops,* Guano is highly recommended by our most experienced farmers and gardeners, when a large quick growth is desired.

It is upwards of twenty years since guano was first introduced into the United States, and for the past five years it has been very extensively used and highly approved of by the farmers and gardeners in the neighborhood of Boston, New-York, Philadelphia, Baltimore, Norfolk, Charleston and New-Orleans. A. B. ALLEN. *New-York, June 13, 1848.*

[For price of guano, which is quite low, see advertisement of A. B. ALLEN & Co., 189 & 191 Water St., New-York.]

#### Lightning Rods.

The electric fluid, whose passage through the air is commonly called a flash of lightning, has a stronger affinity for some substances than for others. This is easily shown with a common electrical machine; for having obtained a sufficient charge for our purpose, on presenting a rod of copper in one hand and a rod of glass in the other, at equal distances, the discharge will be found to take place on the copper and not on the glass one—hence we have what are called *conductors* and *non-conductors*. Electricity passes with greater or less facility, according as the object with which it is brought in contact, possesses affinity for the fluid—or according to its conducting power. Hence those things which stand low in the scale, or non-conductors, afford an almost impassable barrier to electricity, and are commonly shattered to pieces in its passage.

To apply these facts to the subject of protecting buildings by lightning rods: suppose a discharge about to take place in close proximity to a house on which is affixed a lightning rod; by reason of the attraction of the rod, the fluid is turned out of its course to the building, (which is a non-conductor,) and passes down the metal into the ground—leaving behind none of those fearful appearances which would otherwise have marked its passage. Here, then, we see that the greater the difference between the conducting power of the building and the material of which the rod is composed, the greater will be the protection secured.

Iron and copper are the metals which are found to answer the purpose best; and although copper is the most powerful conductor, yet by reason of its high price, compared with iron, the latter is commonly used.

The next thing to be considered is the dimensions of the rod. And first, as to length or height; suppose a rod twenty feet high, to be placed exactly perpendicular to the ground; then with a radius of forty feet, describe a circle whose centre shall be the spot penetrated by the rod. The diameter of this circle will be eighty feet.

Now each and every object within this circle, which does not project out of an imaginary line drawn from the top of the rod to the circumference of the circle, will be found to be fully and amply protected. The law may be said to be, that a lightning rod will protect everything placed within the circumference of a circle describing it, with a radius twice the perpendicular

height of the rod. Therefore, in putting up a lightning rod, the perpendicular height of the rod, from the point where it ascends from the ridge, must be 1-4th the length of the ridge, that is, if it ascends from the ridge at the centre between the two ends. If the rod ascends from one end of the ridge, its height must be one-half the length of the ridge—unless another rod is provided for the other end, in which case each must project one-fourth the length of the ridge. From this it will be seen that the great point in relation to the length of the rod, is not the absolute length from one end to the other, but only the length measured from the tip to where it leaves the ridge of the building. The height of the building makes no difference—the extreme horizontal length of the ridge only, being taken into account.

The diameter, or thickness of the rod should be—if iron, three-fourths of an inch thick—if copper, half an inch. The reason that rods of this thickness are required, is, that they may not be melted by the most powerful discharges that occur. The end of the rod that is to project above the building, generally terminates in a fork of three prongs. Of this there is no necessity if one is well made. The only reason for having three points is, if one gets rusty, there is still another remaining bright. Now if one is constructed so that it will not get rusty, it is all that is required. The rod should be brought to a point, and perfectly capped with some metal not liable to oxydation. Platina, gold, and silver, are used—the two first are preferable to the last. The cap should be from an inch and a half to two inches in length and of the thickness of a sixpence.

The means of attaching the rod to the building, are various. The most effective and at the same time the most simple is glass. The object is to permanently attach the rod to the building with a non-conducting material. The mode of attachment is as follows: In all cities you may find what are called *glass spools*; Through the hole in the centre the rod passes. On the groove, on the outside, (where in a spool the cotton is wound,) is to be fitted a bolt, which may be readily driven into the building.

The different lengths of the rod should be rivetted together—being first fitted by shoulders. The bottom of the rod should terminate in two or three branches going off in a direction from the building, four or five feet under ground. The depth may vary, according to the nature of the soil—wet soils requiring less and dry ones a greater depth. JOHN J. HIGGINS.

#### Stones for Draining.

I have seen an article written by Prof. J. P. NORTON, on the subject of draining (Vol. v. No. 1, page 16,) where he remarks that stones may be used as a substitute for tiles or pipes; but quotes from Mr. SMITH of Deanston, that no stones should be used much larger than a hen's egg. Also, same vol. No. 5, p. 137, we have an account of Mr. PHINNEY's mode of draining in which he applied stones, the size or weight of which is not mentioned. Now what I wish to ascertain of Mr. P. is, what sized stones he applied. The size of stones is a matter of much importance with me, for the following reason. On my farm of 60 acres, I presume there are not stones enough of the weight of one pound and less, to apply in draining one acre, and to pick them up one at a time, or to break larger ones, I think would be more expensive than pipes, even at eight cents a rod. Besides, stones of those weights are very little obstruction, as they may be easily crushed into the ground by passing the roller over them.

But stones from the weight of one pound to five or six pounds, are very plentiful—a great nuisance, and wall-layers say they are not fit to put into a wall. If, therefore, they will answer in draining, then the farm-

ers of New-England may assume a two-fold advantage; first, of clearing the land of otherwise useless stones, and again have means within themselves whereby to drain their land—and advantages I think are an object worthy to be secured by all cultivators of New-England's sterile lands. A. W. DAY. Colchester, Ct. May 25.

#### To Farmers.—No. II.

The education of agriculturists is a subject much discussed in our own and other countries at the present day; and the question of establishing schools, particularly for this purpose, in connexion with which, it is proposed to have pattern farms, where young men may resort to learn the science of agriculture, is a subject often agitated, and much is said, and perhaps justly, in favor of such project. There are also professorships established in several of our older colleges for the like purposes, all of which efforts show that the public mind is becoming awakened to the subject of agricultural education. Yet we apprehend that these measure alone are not fully calculated to meet the entire wants of the mass of our farming population. A few of our more wealthy farmers may be able to spare the services of their sons at a proper age for them to attend, and have the ability to pay the expense attending the instruction in such institutions. Still, comparatively few could be expected to avail themselves of opportunities like these. Even if it was designed to support these schools at the expense of the State it would avail but little to the less wealthy and larger portion of our farmer's sons, for in most, if not all, of our public institutions, in addition to other difficulties, it requires some special influence to gain admittance to them. We would by no means object to the establishment of such schools, and while we most heartily hail the appointment of agricultural professors in our colleges, as a token of good to the farmer, we cannot believe these means of education will wholly accomplish the end designed, or that they are entirely adapted to confer the "greatest good to the greatest number." It appears to us, that in order to benefit the farming community, as such, the foundation must be laid in common schools. We cheerfully admit the value of what is now learned in these schools in other branches of knowledge to the farmer's child, as well as to the children of other portions of society; but we would not have his education stop here; we would have something particularly adapted to his wants. Let the first principles of agriculture there be taught, the advantage of mixing soils, the benefit of deep tillage of the land, of draining, the proper means of saving and applying manures, the analysis of soils, of grass, grains, roots, and other crops, together with the necessary cultivation to produce good crops. And he would better understand the means necessary to accomplish the end for which he labors. He would also be prepared to be benefitted by the reading of agricultural publications, and to profit by his own after experience, and any new discoveries in science, applicable to his calling. Much of value is now published in our agricultural papers, which but few of our farmers are prepared by their education to appreciate.

A short time since, on inquiring of one of our neighbors, a respectable farmer who has several sons, whether he took an agricultural paper, he replied, that he did not; and the reasons he gave for not doing so were, "that there were many things published in them that he thought was not correct, and much that he did not understand, and besides, (the old story,) he did not believe in book farming." It is probable, had he better understood their value, his opinion would have been somewhat changed, and his sons now growing up to manhood, might have had occasion to thank him for the perusal of an agricultural paper. Although the



feeling manifested by our neighbor is in a measure done away, it still exists; and these publications do not yet find access to but a small proportion of the agricultural population of our country. If any person wishes evidence of this, let him attempt to obtain subscribers to even the best of these papers, and he will soon be convinced of the fact, that the circulation of these papers is quite limited in the most favored portions of our country. If the subject of agriculture was properly introduced and taught in our common schools, we should soon see an universal improvement in the agriculture of our country, and a great and increased demand for all those publications relating to it. Agricultural pursuits embrace a large part of our whole population; and our prospect as a nation, in a great degree, depends upon the intelligence and success of those engaged in these employments; and it is of vital interest to our country that the study of agriculture as a science, having so great a bearing on the welfare of this portion of our community, should no longer be neglected. ONEIDA.

#### Improvement of Stock.

This subject is growing in interest and importance from year to year, especially in those sections of our country better adapted to rearing cattle than raising grain. Much has been done already by our agricultural societies and individuals to improve our stock, and much remains yet to be done. It is the duty, as well as the interest, of every friend of agriculture, to do all he can to elevate the standard of this important branch of farming. I cheerfully grant that the efforts of the past have to some extent been crowned with success. But have not those improvements been too much confined to a certain class of our scientific farmers, whose rank and pecuniary circumstances will consistently admit of a large expenditure for such improvements. This appears from the fact, that the greater amount of premiums on stock awarded by agricultural societies, are to a Colonel A., Major B., the Hon. C., Esq., or Judge D., or some other personage of high rank and affluent circumstances; while the great mass of farmers are living on from year to year with but little or no improvement of their stock. Truly, such things ought not so to be. This is confining the benefits of such improvements within too narrow limits. Something more should be done to awaken the interest and attention of the agricultural community to this important subject, that *all* may in a few years have the privilege and satisfaction of looking around on their choicest specimens of improved stock.

One cause of this evil *may* be, that there is a want of interest among many in this particular. This may be remedied by a wider circulation of such valuable agricultural publications as the *Cultivator*, which cannot fail to create a laudable ambition, and to stimulate to activity every farmer who reads them. But the most prominent cause is, that many of our farmers, who may be more or less in debt for their farms, think they cannot afford to make such investments as are necessary to purchase those improved breeds of cattle so highly and justly recommended.

But how shall *this* be remedied? is a question more easily asked than answered. In looking over the May No. of the *Cultivator*, I noticed, in the communication of F. Holbrook, that the "Massachusetts Society for promoting agriculture," has hit upon a plan which I think would in a great measure remove this cause.

Of a truth this "Society has set us an example worthy of all imitation." If the agricultural society of this state, as well as the several county societies, would expend a portion of their funds in purchasing the best breeds, to be distributed for the improvement of stock, subject to such regulations as would benefit our farmers generally, we should see that a new impulse

would be given to the agricultural interests of this State.

I am aware that this subject is an important one, and having with much diffidence submitted the above remarks for the consideration of the numerous readers of the *Cultivator*, I leave it, hoping to see it enlarged upon by those better qualified to do it justice. C. V. H. *Exeter, Otsego, May 28, 1848.*

#### Raising Wheat.

I do not propose to relate any account of raising *big* crops, which are few and far between in this section. Such are sometimes made the text for a communication from your correspondents, when the common method of farming is left out of sight. I take for my text, twenty bushels of wheat to the acre, which I think can be raised under ordinary circumstances, where wheat growing is an important branch of farming. There are here two dangers to contend with—the fly and rust. My crop, for the last year, consisted of 100 acres, which averaged as above stated, grown on land that had been seeded to timothy and clover two and three years. It was summer fallowed in May and June, plowed deep, sheep kept on through the summer. The first of August commenced harrowing the fallows across the furrows, and did it *thoroughly*. By the middle of August commenced cross-plowing in lands from six to eight paces wide, marked out straight and true; the centres of the lands form ditches to carry off the surplus water, and also serve as guides in sowing. The land remained from two to four weeks after plowing, before sowing, which I am sensible was a benefit to the crop. The seed was sowed on the furrows, so as to fall in drills; two bushels of seed per acre, and harrowed lengthwise of the furrows, which preserves the ditches and drills. The ditches were cleared out by running the plow through them; and cross ditches were made where the water would settle, so as to carry it off, and leave the ground free from it. Wheat will not grow where it is immersed in water.

My method of manuring, is to sow four to six quarts of clover and timothy seed per acre, immediately after harrowing in the wheat. Should the land be of a clayey nature, the seed should not be sown until the next spring. This is the cheapest manuring I have found, and it answers every purpose for raising wheat. On the sandy soil, I sow  $\frac{3}{4}$  of a bushel of plaster per acre, in the month of May.

I commenced cutting wheat ten days before my neighbors, and as many days before it was fully ripe, which satisfied me that wheat is not generally cut in season.

But allow me to indulge my *organ* of prophecy: It is, that our wheat crop is gradually failing—falling before its natural enemies—the enemies that Nature produces, and which are growing in their strength, and the species greatly multiplying. The staff of life must come from some other production of Nature, for it is my prophecy that Omnipotence has decreed that these things will be so.

"There is a divinity that shapes our ends,  
Rough-hew them as we will"

JAMES OTIS. *Berlin, Erie County, Ohio, February 20, 1848.*

[We are unable to discover any rational grounds for Mr. Otis' "prophecy." The increase of the "natural enemies" of the wheat crop, we do not regard as cause for great alarm. We must study the habits of those enemies, and be able to repulse, if not exterminate them. As good crops, (and even *better* ones,) are now produced on the Old Continent, by an improved system of husbandry, as were grown on the same lands a thousand years ago, notwithstanding the prevalence of insects, &c. Eds.]

### The Estates of Gen. Washington.

As the subject of the purchase of Mount Vernon by the general Government is attracting attention, it may interest some of our readers to read a brief description of the estates of Gen. WASHINGTON, written by his own hand. These estates comprised over eight thousand acres of land, lying in the state of Virginia; of which the Mount Vernon premises constituted more than one-half. The remainder was divided into four farms, of from six hundred and fifty to twelve hundred acres each. In the year 1793, Gen. W., in a letter to ARTHUR YOUNG, proposed to lease the last mentioned farms to English or Scotch farmers, who might be disposed to emigrate to this country; the leases to run from seven to ten years, and the rent to be, (in the language of the proposition,) "*a Spanish milled dollar, or other money current at the time, in this country, equivalent thereto, for every acre of plowable or mowable ground, within the enclosures of the respective farms.*"

The first part of the description, it will be seen, relates to the whole tract owned by Gen. W., including Mount Vernon, where he resided. The letter, from which we make the following extracts, is printed in the volume of "*Washington's Agricultural Correspondence*," published by FRANKLIN KNIGHT.

"No estate in United America," (writes Gen. W.,) "is more pleasantly situated than this. It lies in a high, dry and healthy country, three hundred miles by water from the sea, and on one of the finest rivers [the Potomac] in the world. Its margin is washed by more than ten miles of tide water; from the bed of which, and the innumerable coves, inlets, and small marshes, with which it abounds, an inexhaustible fund of rich mud may be drawn, as a manure, either to be used separately, or in a compost, according to the judgment of the farmer. It is situated in a latitude between the extremes of heat and cold, and is the same distance by land and water, with good roads and the best navigation (to and) from the Federal City, Alexandria and Georgetown; distant from the first, fifteen, from the second, nine, and from the last sixteen miles. The Federal City, in the year 1800, will become the seat of the General Government of the United States. It is increasing fast in buildings and consequence, and will, I have no doubt, from the advantages given to it by nature, and its proximity to a rich interior country, and the western territory, become the emporium of the United States.

"The soil of the tract of which I am speaking, is a good loam, more inclined, however, to clay than sand. From use, and I might add abuse, it is become more and more consolidated, and of course heavier to work. The greater part is a greyish clay; some part is a dark mould; a very little is inclined to sand, and scarcely any to stone. A husbandman would not wish to lay the farms more level than they are, and yet some of the fields, (but in no great degree,) are washed into gullies, from which all of them have not as yet been recovered.

"This river, which encompasses the land the distance above mentioned, is well supplied with various kinds of fish, at all seasons of the year; and in the spring with the greatest profusion of shad, herrings, bass, carp, perch, sturgeon, &c.; several valuable fisheries appertain to the estate; the whole shore, in short, is one entire fishery.

"There are, as you will see by the plan accompanying, four farms besides that at the mansion house. These four contain three thousand two hundred and sixty acres of cultivable land, to which some hundreds more adjoining, as may be seen, might be added, if a greater number should be required; but as they were never designed for, so neither can it be said they are

calculated to suit, tenants of either the first or of the lower class, because those who have the strength and resources proportioned to farms of from five hundred to twelve hundred acres, (which these contain,) would hardly be contented to live in such houses as are thereon. \* \* \*

"I would let these four farms to four substantial farmers, of wealth and strength sufficient to cultivate them, and who would ensure to me the regular payments of the rents; and I would give them leases for seven or ten years, at the rate of a Spanish milled dollar, or other money current at the time in this country, equivalent thereto, for every acre of plowable or mowable ground, within the enclosures of the respective farms; and would allow the tenants, during that period, to take fuel and use timber from the woodland, to repair buildings, and to keep the fences in order until live fences could be substituted in place of dead ones; but in this case no sub-tenants would be allowed. \* \*

"Having said thus much, I am disposed to add further, that it would be in my power, and certainly it would be my inclination, (upon the principle above,) to accommodate the wealthy or the weak-handed farmer, (and upon reasonable terms,) with draught horses, and working mules and oxen; with cattle, sheep and hogs; and with such implements of husbandry, if they should not incline to bring them themselves, as are in use on the farms. On the four farms there are fifty-four draught-horses, twelve working mules, and a sufficiency of oxen broke to the yoke; the precise number I am unable this moment to ascertain, as they are comprehended in the aggregate of the neat cattle; of the latter, there are three hundred and seventeen; of sheep, six hundred and thirty-four; of hogs, many; but as these run pretty much at large in the woodland, (which is all under fence,) the number is uncertain. Many of the negroes, male and female, might be hired by the year as laborers, if this should be preferred to the importation of that class of people, but it deserves consideration—how far the mixing of whites and blacks together is advisable; especially where the former are entirely unacquainted with the latter."

### Effects of Special Manures.

At a late meeting of the Council of the Royal Agricultural Society, Mr. LAWES made some interesting remarks in regard to effects of various manures on grain crops. He cited the results of many experiments which he had made on this subject. The chief effect of manure of any kind, he concludes, is to increase the quantity of grain and straw—the *quality* of the grain, or its weight per bushel, and the proportion of grain to straw having been about the same on the lots where manure were used, and on those which had none. Great differences in the quality of the grain, and in the proportion of straw were, however, to be found in the produce of various years, and it was concluded that the effect of manure upon the quality of grain, and the proportion of grain to straw, was very small when compared to the effect of temperature and climate.

Mr. L. referred to the opinion generally held by chemists, that the nitrogen or nutritive elements of grain could be increased by supplying the soil with substances rich in nitrogen. He exhibited samples of grain, some of which were grown by means of mineral manures, and some by minerals with large quantities of ammoniacal salts. A sample, grown by superphosphate of lime, gave upon analysis 3.03 per cent of nitrogen; when ammonia was added, the per centage of nitrogen was only 2.65. Leibig's wheat manure, composed of mineral matter, gave 1.81 per cent of nitrogen, when ammoniacal salts were added, only 1.69 per cent. A sample of wheat grown in Australia, of remarkable fine quality, gave 1.94 per cent of nitrogen. Another,



of indifferent wheat, grown on the borders of the Black Sea, and employed in making the finest description of maccaroni, gave 2.71 per cent of nitrogen. He remarked in conclusion, that while the *produce* is greatly increased by the employment of ammonia, it appears that the percentage of nitrogen in the grain is rather diminished. That under a proper temperature, starch is accumulated by the influence of ammonia, and that in general, those wheats which bear the highest price, are comparatively poor in nitrogenous compounds. This latter conclusion agrees with analyses made long ago. Davy showed that spring wheat and red wheats generally gave a larger per centage of nitrogen than the highest priced white wheats.

Sir JOHN JOHNSTONE stated before the Council, the results of some experiments he had made on a soil naturally good for wheat, which came into his hands in a foul and exhausted state. In reference to the value of Liebig's patent mineral manure, he had found it to produce the smallest results in comparison with the other artificial manures he had used along with it.

Professor WAY alluded in a highly complimentary manner to the valuable experiments conducted by Mr. LAWES, and the excellent papers he had written, which had been published in Journal of the Society. If he did not entirely agree with the views of Mr. L., he "felt convinced that he was pursuing a system of inquiry that must ultimately elicit the true principles of agricultural science." He thought the facts brought forward by Mr. L. were calculated to "encourage the agriculturist in all reasonable hopes of improvement, but at the same time to dissipate the illusory notion that he could at any time become independent of season and climate." In regard to the experiments with mineral manures, Professor W. thought they proved the impossibility of obtaining valuable agricultural results by the use of mineral substances alone, unless there were an abundance of matter in the soil capable of yielding the ammonia and carbonic acid necessary for vegetable growth. In regard to the failure of Liebig's manure, Professor W. considered that in "seeking to render the alkaline salts more permanently available to vegetation, the mark had been overshot, and that the manure was not sufficiently soluble for the wants of the crop to which it was applied; at least he judged so from a sample he had himself analyzed."

#### Animal Physiology.

An English periodical, in noticing Richardson's work on swine, lately published, gives a quotation in reference to the "points of a good pig," in which it is stated that the breast should be broad, as denoting "good room for the play of the lungs, and a consequent free and healthy circulation, essential to the thriving or fattening of any animal."

This, though a point upon which practical men are generally agreed, is contrary to the theory of some physiologists, viz: that animals, to fatten readily, should have *small lungs*. Prof. PLAYFAIR assumed, that if two pigs were taken, one of which had lungs of twice the size of the other, the one with the smallest lungs would make twice as much fat for the food consumed, as the one with the largest lungs.

So far as the observations of the writer have extended, this theory does not appear to be supported by facts. To obtain *positive* results, however, it is obvious that a series of close and thorough examinations and trials with various animals would be necessary. At the same time, it may be useful to give such facts as come within our reach.

In our April number, we noticed some fat animals which had been lately slaughtered in this city. We saw most of these animals before they were killed, and

particularly noticed their forms and outward points generally. We also saw several of them dressed, and had the opportunity of examining their internal organs. Of the cattle, the most remarkable were the heifer, fattened by Mr. McKOWN, the twin oxen from Mr. BASSETT, and the calf from Mr. WOOLFORD. These were of extraordinary fatness, and it may be remarked that when an animal is fattened to so great a degree, the lungs become compressed by the accumulation of internal fat, and are, therefore, of less bulk than when the beast was in a more natural condition.

We took particular notes in regard to the appearances of those animals, but not having room at present for the details, we will simply state, that in every case the heart and lungs corresponded to the external dimensions of the chest; and that the qualities of early maturity and fatness, were in proportion to the size of these organs; in other words, the fattest animals were those which had naturally the largest chests and largest heart and lungs.

#### Sheep in South Carolina.

Mr. B. F. STANLEY, who dates at Pliny P. O., S. C., wishes to obtain a Scotchman, who has been accustomed to the management of sheep, with the assistance of dogs. He says—"I have abundant opportunity for wintering 400 or 500 sheep, and ample range during the summer months; but the difficulty is their rambling off and being killed by dogs. I have seen sheep pass the whole winter here without being fed or receiving any attention whatever; they looked well in the spring. It is seldom we get up in the fall, more than half the number we turn out in the spring—at least so it is with me.

"I should like to employ a man, and give him a share in the profits of the sheep. I would prefer a single man, though one with a small family would not be objectionable. My place is not twenty-five miles from that portion of the Alleghanies called the Blue Ridge. I can vouch for its exemption from the fevers of the cotton region."

#### Norman Horses.

MESSRS. EDITORS:—Allow me to confirm, from personal observation, the statements in the last Cultivator, of your correspondent "J. B. B." in regard to the merits of the Norman horse. I think, however, that they will average a larger size than that stated in the article alluded to. The following is an extract from notes made, when travelling in France, in 1845:

"From what I have seen of the horses in the northern and central departments of France—such as are used in the diligences—I consider them a superior breed of animals, and most of them are well made and handsome, with remarkably fine shoulders and quarters. One-fourth, perhaps, were inferior and wanted size; but take them as a whole, and the general average is better than the public coach horses of England. Englishmen themselves, will tell you this. The Norman horse is strong, surefooted, very true, with good wind and great power of endurance. They are also very docile and free from vice, as frequently five, seven or nine stallions are attached to one diligence, and they are so easily driven that a boy of twelve years of age might safely take the place of the coachman. The most common colors are roans and greys.

"The largest and heaviest of these animals are capital for slow draught, and also would make fine coach stock for the city; while the lighter weighted are well calculated for pleasure carriages and quick work. They possess many qualities in common with the Morgan, though of a larger size. They are the best horses I have seen in Europe for hard and fast work, as I have frequently known from five to seven, make nine miles

per hour with the ponderous diligence filled with 20 passengers, and their luggage, besides a large quantity of merchandize, the whole said to weigh 10 or 11,000 pounds. In the Malle-poste they are frequently driven ten and eleven miles per hour."

I have often wondered that there were not more of this valuable breed of horses introduced into the United States. They would unquestionably improve our breeds, and as the horse for all-work, are better than the English blood stock. The few that have been introduced into this country have proved to be fine animals, for instance, the importation by Mr. HARRIS of N. Jersey, and the sire of the Morse Grey.

They could be purchased convenient for shipment, at Havre, and the best of them might be had for \$200 or \$250. A MARYLAND SUBSCRIBER. *Baltimore, June 5, 1848.*

#### Advantages of Water in Barn Yards.

By reading the able communications that have from time to time appeared in the Cultivator, I had formed a favorable opinion of the advantage of having running water in my cattle and sheep yards. Although I had a supply of water within ten or fifteen rods of my barn, I determined to fetch a spring that was situated nearly half a mile off; and I will now say, that after a trial of several months, it has more than realised my highest expectations. I am satisfied that I shall save at least one cart load of manure from every ox or cow that I feed in my yard, more than I did when they had to go to the river to drink. Then they would seldom go but once in a day, and in stormy or bad weather, not so often; consequently, when they did go, they would drink so much as to render them uncomfortable for several hours.

Now they will drink on an average about five times a day. I am satisfied that they will keep in better condition on less feed than formerly. I think that in the item of manure, it will pay the expense, to say nothing of the comfort of not being obliged to go ten or fifteen rods in cold and stormy weather to water horses; and it is often difficult when the ground is slippery, to get cattle to go a few rods to get their water. There are very many situations, where, with a trifling expense, persons could have water in their yards at all times; and I am satisfied, that if they once knew the advantages of this, and of having running water at their dwelling houses also, they would not do without it again for twice the cost. A small stream of good soft water will answer for a large family, and will save many a step and many a hard pull to draw it from a well.

**INQUIRY.**—I think of paving my cattle stables with stone; also to form drains to convey the urine to a cistern, with the intention of using it to saturate the manure after it is thrown from the horse and cattle stables. What kind of cement would stand the water, the frost and the tread of the cattle? how made, and how used, and what would be the cost? A SUBSCRIBER *Westchester County, March, 1848.*

**OLD FASHIONED THEOLOGY.**—The following remonstrance against mechanical improvement exhibits the light in which the first introduction of the fanning mill was viewed by some persons, at the time when sifting it in a current of wind was the only known way of expurgating the chaff:—

"Your Ladyship and the steward has been pleased to propose that my son Cuddie should work in the barn wi' a new fangled machine for dighting the corn from the chaff, thus impiously thwarting the will of Divine Providence, by raising wind for your ladyship's own particular use, by human art."

#### Notices of New Publications.

**CHEMICAL TECHNOLOGY; or Chemistry applied to the Arts and to Manufactures.** By Dr. F. KNAPP, Professor at the University of Giessen, translated and edited, with numerous notes and additions: By Dr. EDMUND RONALDS, Lecturer on Chemistry at the Middlesex Hospital, and Dr. THOMAS RICHARDSON, of Newcastle-on-Tyne. First American edition, with notes and additions, by Professor WALTER R. JOHNSON, of Philadelphia.

This is one of the most valuable books that has lately been issued—valuable on account of the vast amount of information it contains relating to the useful arts. It consists of two general divisions, the first of which describes those branches of manufacture depending on the process of combustion, and the second the processes concerned in the production and application of the alkalies and earths. In the first chapter, the value and uses of different kinds of fuel in the production of heat, are considered at length, together with the various modes of heating and lighting buildings; modes of making illuminating gas; different kinds of lamps; making charcoal and coke, the production of tar, &c. Other portions of the work describe the processes of obtaining potashes, soda; the manufacture of soap in all its details; of various acids used in the arts; of gunpowder, gun cotton, salt petre or nitre, salt, &c. &c. The work contains 500 pages, octavo; is very handsomely printed, and contains upwards two hundred well executed engravings and illustrations. We shall have occasion to draw on the contents hereafter. Published by LEA & BLANCHARD, Philadelphia.

**NEW SYSTEM OF VEGETABLE PHYSIOLOGY.**—We have received a pamphlet with this title, written by DANIEL VAUGHAN, Cincinnati. The chief design appears to be to show that the ascent and elaboration of sap, the conversion of humus into woody fibre, and the production of vegetable compounds generally, is affected by currents of electricity, aided by the agents light and heat. Some of the author's reasoning is certainly very plausible, though we have not sufficiently considered the subject to pronounce, positively, in regard to the theory advanced.

**SELF-EDUCATION: or, the Philosophy of Mental Improvement.** By WILLIAM HOSMER. Published by WM. H. ONGLEY, Havana, N. Y.

The above is a duodecimo volume of 262 pages. It is a work well calculated to aid the mind in the acquirement of knowledge. The author appears to be familiar with the subject he has undertaken to illustrate, and has given many valuable ideas in a clear and perspicuous style. He considers education the acquirement of knowledge, which is valuable just in proportion to the importance of the things learned. We think the work will prove useful to a large portion of the youth of our country, whether they enjoy the benefit of schools and instructors, or are obliged to pursue unaided, the toilsome journey up the "hill of science."

**REPORT OF THE COMMISSIONER OF PATENTS FOR 1847.**—The report of Mr. BURKE, Commissioner of Patents, for the last year, is a document which reflects credit on that officer, and the individuals from whom the valuable materials of which it is composed, were obtained. It forms a volume of 661 pages, comprising a greater amount of useful information than any previous report from this department. In addition to much statistical intelligence of a general nature, in regard to the products and trade of the country, there are several original papers on various subjects, drawn up with care and labor. Of this class we may mention the elaborate and valuable article on wool-growing and the management of sheep in Germany, by Mr.



FLEISCHMANN; the culture of the grape, and the manufacture of wine in the United States, by Mr. LONGWORTH; the hog crop of the United States, by Mr. CIST; and experiments in feeding hogs, by Mr. ELLSWORTH, (formerly Commissioner of Patents.) There is also much valuable matter relating to other subjects, which we cannot now particularly notice, but shall have occasion to refer to them in future.

Mr. BURKE gives the following in regard to the amount of the different kinds of grain produced in the United States in 1847:

Breadstuffs.	Bushels.	Total bushels.
Indian corn, or maize, ....	539,350,000	
Wheat, .....	114,245,500	
Rye, .....	29,222,700	
Buckwheat, .....	11,673,500	
		694,491,700
Grain not used for breadstuffs.		
Oats, .....	167,867,000	
Barley, .....	5,649,950	
		173,516,950
		868,008,650
Other articles of food.		
Potatoes, .....	100,950,000 bushels.	
Beans and peas, .....	50,000,000 do	
Rice, .....	103,640,590 pounds.	
Estimated population, 20,746,400.		

### Domestic Economy, Recipes, &c.

#### The Dandelion.

Dr. HOLMES, of the *Maine Farmer*, says: The dandelion is valuable, both as an article of diet and as a medicine. "It is eagerly sought for by many as a very excellent plant for greens. A very wholesome and pleasant beer is made by substituting it (roots and all) for spruce. In medicine, it is considered an excellent tonic and corrector of any derangements of the functions of the liver, dyspepsia and chronic diseases of the digestive organs. It may be used for these purposes in two ways, viz: in decoction and in the form of an extract. For decoction, take, say root and herb, washed clean, half a pound; water, half a gallon; boil down to a pint. The dose from one to two wine glasses full once or twice per day. To make the extract, take fresh roots, bruise them, say a pound and a half; pure, soft, boiling water, two gallons; let it stand twenty-four hours; then boil down to a gallon, strain it while hot, and simmer it away gently to a thick waxy substance. Be careful not to burn it in the latter stage of the process. It should be a brown, bitter, aromatic substance, and easily dissolved in water. The dose of this is from ten grains to thirty grains."

**SALTING AND SMOKING HAMS OR BEEF.**—The peculiar flavor of the celebrated Westphalia hams is partly attributable to juniper berries having been put in the brine. Portugal hams and sausages are held in high estimation. "D. S. E.," in the *Agricultural Gazette*, states that the most simple method of preparing these hams, is to rub them daily with a proportion of bay and common salt. At the end of this time, with a brush, smear all over once or twice a small portion of pyroligneous acid, according to flavor, diluted with brine. In three or four days, hang it up to dry, or beef may be left in pickle. A small quantity of garlic is sometimes put in the pickle to give the flavor to such as like it. The same writer states that the far-famed Portugal sausages, called "lombo de porco," (loin of pork,) are made of the entire loins cut from the bones and rolled together, before being put into

the skins; they are well soaked in a port wine brine. "The equally famous Samego hams, so called, though made all over the northern provinces of Portugal, are cured with sugar, which gives them that peculiar tenderness and delicacy, and the brine, (made of Port wine, sugar, salt, garlic and sweet herbs,) that peculiar flavor for which they are so renowned. Birch wood, myrtle, cistus, and other aromatic herbs, which abound all over the country, are used for smoking them."

#### Corn Meal Pudding.

Our correspondent JETHRO, of Reclusa, Georgia, sends us the following receipt: "Seven spoonfuls of sugar, yolks of six eggs, beaten very light, with the addition of the whites, and cut it with a knife to a stiff froth; five spoonfuls of coarse meal stirred in lightly; to be baked brown and served with wine sauce."

**CATCHING AND DESTROYING RATS.**—We have on a previous occasion mentioned that the oil of rhodium and oil of anise, were sometimes used to attract rats. Professional rat catchers in England employ these substances in enticing rats to their traps. Dr. J. V. C. SMITH, of Boston, lately stated at one of the agricultural meetings, that he had tried anise alone, and the rats came forward immediately while he was present. He stated also that ground plaster or gypsum, mixed with dry meal, will be eaten by rats, and that it will set in the stomach and kill them.

**PEACH LEAVES**, and sometimes the kernels of peach stones, are used to flavor cakes and pies. They contain small quantities of prussic acid, and are often deleterious. A whole family were poisoned in Mississippi, one of whom died, by eating pies flavored with peach leaves.

**GREASING CARRIAGE WHEELS.**—The best composition that can be prepared to relieve carriage wheels and machinery from friction, is composed of hog's lard, wheat flour, and black lead (plumbago.) The lard is to be melted over a gentle fire, and the other ingredients—equal in weight—may be added, till the composition is brought to a consistence of common paste, without raising the heat near boiling point. One trial of the paste will satisfy any one of its superior quality. *Ex. paper.*

#### HONOR TO THE TOILING HAND.

All honour to the toiling hand,  
Or in the field or mine;  
Or by the hissing steam machine,  
Or on the heaving brine.  
Whatever loom or barque, or plow,  
Hath wrought to bless our land;  
Or wrought around, above, below,  
We owe the toiling hand.  
Then honour—honour to the toiling hand.

In battles with the elements,  
It breaks the stubborn sward;  
It rings the forge,—the shuttle throws,—  
And shapes the social board.  
It conquers clime,—it stems the wave,—  
And bears from every strand  
The sweetest, best of all we have,  
Gifts of the toiling hand.  
Then honour—honour to the toiling hand.

**PRODUCTIVE APPLE TREE.**—Samuel C. Corwin, of Phelps, Ontario county, N. Y., has a tree of the Rhode Island Greening, which yielded 70 bushels in 1847, 65 of which were good and fit for market.

**IRRIGATION IN MEXICO.**—According to Humboldt, irrigated soils in Mexico often yield from 40 to 60 times the seed; 16 for 1 is reckoned a middling crop; and, taking the whole of Mexico, the mean produce may be estimated at from 22 to 25 for 1.

## MONTHLY NOTICES—TO CORRESPONDENTS, &amp;c.

COMMUNICATIONS have been received, since our last, from Wm. R. Prince, Deane, J. T. Plummer, Charles Colby, A. W. Day, J. B. T., Hampden, Subscriber, Isaac Hildreth, C. V. H., A Maryland Subscriber, F. Emslee, One of your Subscribers, J. C. H., A. B. Allen.

BOOKS, PAMPHLETS, &c., have been received, during the past month, as follows: "Knapp's Chemical Technology," vol I; from the Publishers, LEA & BLANCHARD, Philadelphia.—"Ewbank's Hydraulics and Mechanics," part VIII., from the Publishers, GREELEY & McELRATH, New-York.—Report of the Commissioner of the Patent Office, from the Commissioner, Hon. EDMUND BURKE, and D. GOLD, Esq.—Seeds of a species of Clover, growing in the vicinity of the city of Mexico, from A. PHELPS, Esq., New-Orleans.—Self-Education, or the Philosophy of Mental Improvement, by Wm. Hosmer. From W. H. ONGLEY, publishers, Havana, N. Y.

HEMLOCK HEDGE OR SCREEN.—In the garden of J. W. WHEELER, Esq., of Hyde Park, we lately saw a beautiful hedge, or screen, of hemlock, (*Abies canadensis*.) We had not previously seen this material used for such a purpose, but in this instance it has answered admirably. Mr. W. informed us that it had received no particular pains in its management. The young trees were taken from the woods when from 6 to 8 inches high, and set where they now stand; since which no attention, has been given except to keep, them sheared in the proper form. It is five years since the screen was planted, and it is about three and a half feet high, perfectly even, and so dense as to be wholly impenetrable to sight from the ground to the top. We would not be understood to recommend hemlock as a live fence against cattle, and we are not certain that it would answer against sheep, as they might check its growth by browsing, especially in the winter or early in the spring, when, in consequence of the scarcity of green forage, they will eat hemlock freely. But for a screen, in pleasure grounds or gardens, we have seen nothing which surpassed the one alluded to.

SALE OF SHORT-HORNED CATTLE.—Mr. PRENTICE, of Mount Hope, has disposed of all his short-horned cattle to GEORGE VAIL, Esq., of Troy. The lot consisted of twelve head, four of which were cows that Mr. P. reserved at his sale in 1845, and the others were young animals bred from them since that time. As the cows mentioned were those which Mr. P. selected especially for himself, from his former herd of about sixty head, it may well be supposed that they are of high value, and we may add that their offspring bid fair to equal them in the points and qualities which constitute first-rate short horns.

The circumstances which have induced Mr. PRENTICE to part with this stock are, briefly, the appropriation of his farm to purposes which render it impracticable to keep a breeding herd. The addition of these animals to Mr. VAIL's former stock, puts him in possession of the largest and most distinguished herd of short horns in this section of the country; and as it is his intention to continue the breeding of them, persons seeking for choice animals of this highly esteemed breed, will here have the advantage of a wide range for selection.

We trust that Mr. VAIL's success as a breeder will be proportionate to his enterprise, and indeed we believe that good animals of this breed will continue to command remunerative prices. At some of the late sales in England, quite as large sums have been ob-

tained as this description of stock has generally brought in times past. We notice, for instance, that the remainder of the herd of short horns belonging to the estate of the late Earl SPENCER, has just been disposed of at public sale. Eighty-eight animals were sold, and brought the enormous sum of £5,743.10s., about \$28,717. Sixteen bulls produced an average of £90, (\$450,) each. One, "Upstart," sold for £210, (\$1,050,) and another, "Usurer," for £420, (\$2,100.)

NATURAL HISTORY.—We are indebted to Mr. HENRY JORDAN, for a copy of the doings of the "Natural History Department of the Brooklyn Institute," of the meeting held on the 18th of May. Interesting observations were made by several gentlemen, especially in reference to some department of entomology. Mr. HOOPER observed, that lepidoptenous insects were separated into three grand divisions: "The butterfly, the moth, and the sphinx, and these three are again divided into various families and generations, and then into species. The greatest distinction between the moth and sphinx besides form, flight and food, consist in the form the larvæ of all the sphingii assumes, when a state of rest, resembling in figure the Egyptian sphinx holding on to the tree with its hinder feet, and raising its foreparts and curved neck, and hence its name."

MEXICAN CLOVER.—We have received from Mr. A. PHELPS, of New-Orleans, a few seeds of a kind of clover, said to have been found near the city of Mexico. Mr. P. thinks it is superior to any clover in the United States. The seeds have been sown, and if they vegetate, the plants will be fairly tried.

FARMER'S CABINET.—We learn from the June number of this paper, that its publication will be discontinued at close of the present volume, (next month,) and that arrangements have been made by which subscribers to the Cabinet will be supplied with the American Agriculturist in its stead.

SUPERIOR MATERIALS FOR PAINTING.—We have received from Mr. RICHARD DALLY, of New-York, samples of white lead and linseed oil, as prepared by him for painting. The mode of preparation was noticed in our number for January last. For further particulars see advertisement in this number.

CASTOR OIL.—A "SUBSCRIBER" wishes to obtain information in regard to what machinery, and the cost of the same, is necessary to express, without heat, the oil from the castor bean—the apparatus to be calculated for the manufacture of twenty to thirty barrels of oil per year. We shall feel under obligations to some person engaged in this business, if they will furnish the information desired.

POWDERED CHARCOAL.—Mr. CHARLES COLBY, of Meriden, New-Hampshire, states that he applied six bushels of charcoal, ground in a mill, to an acre of potatoes, putting it in the hill at the time of planting. He thinks it prevented the "rot." We have no doubt that charcoal is a good antiseptic, but it does not appear from Mr. COLBY's account, that the preservation of his potatoes was owing to the application of this substance. To be sure, the potatoes were sound, and so they were in many instances where nothing was used; and we have often seen the "old tubers" as sound as his are represented to have been, where nothing but ordinary manure was applied. If he had put the charcoal in alternate rows only through the piece,



leaving the rest untouched, the precise benefit of the charcoal might have been known.

**DRAINING PIPES.**—A correspondent at Paterson, N. J., informs us that the draining pipes, spoken of in our May number, are sold by W. K. PRICE, Middletown Point, Monmouth county, N. J., \$16 per thousand pipes, each pipe a foot long. Two "flats," or soles, are necessary to each pipe, and these cost \$2 to \$4 per thousand; "so that 1000 feet of pipe drain will cost about 18 to 20 dollars."

**SPRUCE SHINGLES.—INQUIRY.**—E. M. Hoyt, of New Haven, Vermont, asks: Can you or your contributors inform us how to render spruce shingles durable in a roof? Spruce is sawed into shingles in our mountain towns, and furnished to us at a low price. They rot, so that the roof becomes leaky in from seven to ten years, depending much upon the steepness. Have any experiments been tried of immersing them in oils, or other liquids, to add to their durability? If so, will you please communicate the results of such experiments, cost, &c.

**MANUFACTURE OF AGRICULTURAL IMPLEMENTS.**—The Boston Traveller notices the implement manufactory of Messrs. PROUTY & MEARS, in South Boston, Mass. An account of this establishment was given in the Cultivator for 1845, pp. 44, 45. We are glad to hear that the concern is still in a flourishing condition. The improvements of Messrs. P. & M. in the construction of the plow, and other implements, have been of great importance to the cause of agriculture.

**A GOOD HORSE.**—A physician of Hampshire county, Massachusetts, thus describes one of his horses in the *Spirit of the Times*: "He is a chestnut sorrel with white snip, fourteen hands high, and seventeen years old this spring; came from Canada twelve years ago, and appears like a Morgan horse. Since he was broke, he has never been out to pasture a day; never been lame a day, or off his feet, and has travelled over these mountains, either to a heavy sulkey or a common buggy-wagon, over 120,000 miles. The owner says he has the "documents" to prove this, and that he is ready to back him to go a mile in three minutes any day when the roads are in fair order.

**FAIR AND PLOWING MATCH.**—The Rochester *Daily Advertiser* furnishes an account of a fair and plowing match which took place at Avon, Livingston county, on the 27th of May last. Twelve teams engaged in the match, all of whom performed their work so perfectly, that it was difficult to tell who was entitled to the premiums. Large numbers of excellent oxen and steers, and several pair of fine horses, were exhibited. A large number of people, of both sexes, were in attendance. Great preparations are making for the fall fair, which is to take place at the same place on the 29th of September.

**APPROPRIATION OF THE SALES OF PUBLIC LANDS.**—R. L. COLT, Esq., of Paterson, N. J., has petitioned Congress that a section of ten miles square of the public lands, shall be given to each state and territory of the United States, for the purpose of endowing an Agricultural College in each State.

**EXPORTS FROM THE UNITED STATES FROM JULY 1, 1846, TO JUNE 30, 1847.**—According to a statement prepared at the Treasury Department, it appears that the exports from this country, within the dates above mentioned, were as follows:—Flour, 4,382,496 bbls.; Wheat, 4,399,951 bush.; Indian Corn, 16,326,050 bush.; Corn Meal, 948,062 bbls.; Rye flour, 48,982 bbls.; Ship bread, 160,980 bbls., and 31,082 kegs; Rye, oats, &c., value \$1,600,962. Total value of the above articles, \$53,262,457.

**DEATH OF PINES AT THE SOUTH.**—The South Caro-

lina papers speak of the death of pine trees in that section. Immense numbers of them are said to have suddenly perished, and the cause has not yet been discovered.

**FEEDING SHEEP.**—The following are results of experiments recently made in Germany. The value of the Ruta бага compared with potatoes for sheep, is as 7 to 2; for the growth of wool merely, as 20 to 17.

Sheep kept without shelter, required more food than those in good ventilated sheds, as 30 is to 22; while the sheltered animals increased more rapidly in weight than the others, as 3 is to 1.

**PRECISION.**—In Kentucky, a "barrel" of corn is five bushels of the shelled grain. In New-Orleans, it is a flour barrel full of ears. A barrel of flour is seven quarters of a hundred weight, or 196 lbs. A barrel of tar is 20 gallons. A barrel of gunpowder is only a small keg holding 25 lbs. At Chicago, lime is sold by the barrel, where the smallest sized cask that is called a barrel, will pass muster.

**CORN CROP.**—The corn crop of the United States, according to the estimate of the Commissioners of patents, for 1847, was 540 million bushels—being about four times in value the whole production of cotton.

**EGGS.**—The egg trade of Cincinnati amounts to nearly three million dozen annually. One half are sent south—the rest consumed.

**EXCREMENTS OF BIRDS.**—The excrements of birds, both from the kidneys and the intestinal canal, are voided together; the dung, therefore, contains both phosphates and ammoniacal compounds, so essential in the formation of gluten and other nitrogenized matters of crops. It is only by both the solid and liquid excrements of animals, that the inorganized constituents of plants are represented. This is probably the reason why guano is so powerful a manure.

**ANALYSIS OF URINE.**—The following are analyses of the urine of cows and horses, the former made by M. Brande, and the latter by Foureroy and Vauquelin:

Cows.—Phosphate of lime,.....	3
Muriates of potassa and ammonia, ..	15
Sulphate of potassa,.....	6
Carbonate of potassa and ammonia, ..	4
Urea,.....	4
Water,.....	65

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HORSES.—Carbonate of lime,.....	11
" soda,.....	9
Benzoate of soda,.....	24
Muriate of potassa,.....	9
Urea,.....	7
Water and mucilage,.....	40

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**IRON AND GALLIC ACID.**—When a piece of iron is driven into a stick of green oak, a blue colored stain is frequently seen on the wood. This is caused by a union of the gallic acid of the oak with particles of iron. It is, in fact, genuine ink, and only needs to be combined with a little gum arabic to give it a body, to be used in writing.

**CASE-HARDENING IRON.**—H. WEBSTER gives the following account in the *Prairie Farmer*, of his mode of case-hardening iron, which he has found by twelve years experience to be superior.

Take one part of oxalic acid and two parts prussiate of potash; pulverize them together, and put them upon the iron when red hot—hold the iron in the fire to dry. If it is desired to harden very hard, repeat the operation several times. The iron does not need to be kept from the air, as by the old process of hardening.

**THE HORTICULTURIST.**—For prospectus of the 3d vol. of this work, see advertising pages. The first No. (for July) of the new vol., will be one of the most interesting yet published.

**THE SEASON AND CROPS.**—April was quite dry, but in other respects was not unfavorable to vegetation; and the rains which set in with the first week of May, brought out more abundant and richer foliage than is usually seen. Grass and winter grain made a luxuriant growth, though the prevalence of cloudy and damp weather produced too much succulence of the stems to give the strength to support the grain in the best manner. The latter part of May, and fore part of June were remarkable for cold and moisture, as well as for very high winds. Frost occurred in many places on the first of June, and in some places on the thirteenth; though the injury by frost was less than that caused by the cold winds, which had a blighting effect on some tender fruits and plants. On the fifteenth of June, the weather became suddenly hot, the mercury ranging, for several days, from 88° to 96° in the shade. So great a degree of heat, with seasonable rains, has caused a rapid advance of all crops. Hay will be very heavy; winter wheat will be good, if it escapes rust, and has favorable weather to ripen; the same may be said of rye. Oats and barley look well; Indian corn is rather backward. In this vicinity, there is an entire destitution of peaches, plums, and fine cherries; but mid-way between this and New-York, cherries were abundant; and in New-Jersey, we hear peaches are plenty. Apples and pears are generally well set, though there is considerable appearance of blight on the trees, and many fine pears have nearly perished this season.

The wheat crop at the south and west is generally spoken of as good.

**HOGS IN THE WEST.**—The number of hogs slaughtered in the valley of the Mississippi last year is stated to have been 1,500,000, a fourth of which were put up for market in Cincinnati. The *bristles* from these hogs are estimated to be worth 50,000 dollars. Eleven millions of pounds of lard from them is calculated to have been run into lard oil. This oil is exported to the Atlantic cities, and to foreign countries. It is used in the Eastern States for the adulteration of sperm oil, and in France it is used to adulterate olive oil, the skill of the chemists being such that they are able to incorporate 65 to 70 per cent of the lard oil with that of the olive.

**GOOD FARMING IN OHIO.**—A correspondent of the Ohio Cultivator, says: "I always plant my corn on a clover lay or stubble, and apply all the manure I can collect, which is no very small quantity, as I manure for no other crop. I do not pretend to know all about farming, but I do know that I raise about *one-third more* corn to the acre than I did 35 years ago, when I tilled the virgin soil, while I see the once fertile river bottoms falling off nearly one-half."

**TO DESTROY THE WIRE WORM.**—S. Davidson, of Greece, Monroe county, N. Y., states in the Genesee Farmer, that he successfully destroys the wire worm, and other insects, by covering the ground two or three inches with straw, where it remains two or three weeks to settle. During this time the worms work on the surface, under the straw. On a dry day the straw is burned, destroying worms and eggs. This remedy was applied to a part of a field, "full of wire worms." Where the fire went, there has been no appearance of wire worms; on the rest of the field they continued abundant.

**POTATO DISEASE—NEW REMEDY.**—Dr. Klotzsch, of Berlin, is to receive 2000 thalers, (about \$1,400,) for a new remedy for the potato disease. It consists, in substance, in pinching off the tips of the shoots, in the fifth, sixth, and seventh week after planting, when the

plants are six to nine inches high. Only half an inch of the tips are removed, a greater portion is injurious. This causes an increase in the direction of the root, strengthens the leaves and stalks, while the action of the sun's rays is mitigated by the thickened foliage. Rows which were selected for experiment, were readily distinguished from the others, by their more numerous branches, and larger and darker foliage. Much success has attended this experiment, after various repetitions.

**U. S. CROPS.**—The Commissioner of Patents says, the quantity of grain of all kinds exported during the year, ending Sept. 1, 1847, was 41 million bushels. Of this, about 20 million was wheat, 20 million corn, and the rest rye, barley and oats. The whole wheat crop, 114 million of bushels, and corn 540 million bushels.

**TIME FOR BUDDING.**—As a general rule, the best time for this work, is when the bud has become fully matured or full grown, and when at the same time the bark of the stock will peel freely.

**CHESS.**—A correspondent of the Ohio Cultivator, says, Go among the best wheat shocks at harvest, and select the largest and best ears for seed—sow the wheat on a piece of perfectly clean ground for seed another year. By this means, if proper care is used, "the seed will be quite clean, improved in quality, and will not *turn to chess*. I have tried this plan and have not had a spear of chess in the crop."

**ROTATION.**—A good farmer in Ohio, who has rendered his farm richer, while others around him have been making theirs poorer, has adopted the following rotation:—

- 1st year, Corn, well manured after clover,
- 2d " Fallow,
- 3d " Wheat,
- 4th " Corn,
- 5th " Oats, with clover, then pasture 3 years.

**SWEET POTATOES FOR STOCK.**—A writer in the Southern Cultivator, housed last fall, *two thousand bushels* of sweet potatoes from ten acres of ground. He used them for fattening his hogs, which were fed almost exclusively on boiled potatoes, and he says he never saw hogs thrive better. He also fed them cooked with turneps to working steers and milch cows with much success.

**THE WOOL MARKET.**—Samuel Lawrence, the greatest wool purchaser and manufacturer in the country, says, "the business of wool growing in this country, is destined to be of immense importance, and I am firm in the belief, that *within 25 years, we shall produce a greater quantity than any other nation*;" and he adds, "there is not enough annually raised in the country, by 10,000,000 to meet the demand of the manufacturers."

**PROFITS OF DRAINING AND BURNT CLAY.**—At an agricultural dinner at Robert Peel's, last autumn, — Woodward, an eminent practical farmer, stated that some undrained land had come into his occupation, heavy land which only produced 10½ bushels of wheat to the acre—it was drained three feet deep, subsoiled, and dressed with burnt clay, and the first year he obtained from it 51 bushels. He regarded the burning of clay as a most important practice, rendering the soil more friable and convertible, and worked with much less horse-labor—[and particularly applicable to heavy land.]

**CULTURE OF THE CRANBERRY.**—Sullivan Bates of Norfolk county, Mass., who has had very extensive experience with the cranberry, says, "As far as I have ascertained, there are three varieties of the cranberry, viz:—the Barberry, the Cherry, and the Bell. I have never known any other variety of the berry that would naturalize to dry soil, except the Bell cranberry; this grows much in the shape of an egg, it is inclined to



grow in the wild state, on the borders of cranberry bogs, spreading its way to upland soil—it is much larger than the others in its wild state. He recommends to those desirous of successfully cultivating the cranberry, to try the plants on different soils of the same farm, to ascertain which is best—that which is best for the potato being usually suited to the cranberry. It becomes larger by cultivation—and yields from 150 to 400 bushels per acre.

**WASH FOR BUILDINGS.**—The following composition is said to be not only protective against fire, but to render brick work impervious to water. Lime is slacked with hot water in a tub to keep in the steam. It is then passed, in a semi-fluid state, through a fine sieve. Take six quarts of this fine lime, and one quart of clean rock salt for each gallon of water, the salt to be dissolved by boiling, and the impurities to be skimmed off. To five gallons of this mixture of salt and lime, add one pound of alum, half a pound of copperas, three-fourths of a pound of potash added gradually, four quarts of fine sand, or hard wood ashes, and coloring matter to suit the intended purpose. It is applied with a brush. It looks as well as paint, and is as lasting as slate.

**ARTESIAN WELLS.**—The deepest boring in the world is at Mondorf, which is 2200 feet deep—and from which, in consequence of the progressive increase of heat in descending, every where found, the water is 95 degrees Fah. or nearly blood heat. The boring at Grenelle, Paris, is 1794 feet deep, and discharges 20 barrels per minute, with a force strong enough to rise 50 feet above the surface.

**OLD AND NEW CLOVER SEED.**—A correspondent of the American Farmer, says that clover seed at the second year has not lost its vegetating power, though from the increased hardness of the shell, it sprouts more slowly, a difficulty removed by soaking the seed 24 hours before sowing, in salt water, at 120 degrees Fah. and then rolling it in powdered lime or gypsum.

#### PRICES OF AGRICULTURAL PRODUCTS.

[New-York, June 16, 1848.

**FLOUR**—Genesee per bbl. \$5.50a\$5.75—Georgetown \$6a\$6.12½.  
**GRAIN**—Wheat, red, per bu., \$11.50a\$120 (dull)—Corn, northern, 56c.—Rye, 72c.—Barley 65a75c.—Oats, 42a43c.  
**BUTTER**—Orange County, per lb., 18½a20c.—Western, dairy, 15a16c.  
**CHEESE**—per lb., 6¼a7c.  
**BEEF**—Mess, per bbl., \$10.37a\$10.50—Prime \$6.  
**PORK**—Mess, per bbl., \$10.50—Prime, \$8.  
**HAMS**—Smoked Western, per lb., 5a9½c.  
**LARD**—in kegs, per lb., 7¼a8c.  
**HEMP**—Russia clean, per ton, \$230.—American dew-rotted, \$130a\$135.  
**HOPS**—First sort, per lb., 5a7c.  
**COTTON**—Upland and Florida, per lb., 4¾a7c.—New Orleans and Alabama, 4¼a8c.  
**WOOL**—(Boston prices.) June 17.  
 Prime or Saxon fleeces, washed per lb. .... 42a45 cts.  
 American full blood fleeces, ..... 38a40 "  
 " half blood do ..... 30a32 "  
 " one-fourth blood and common, ..... 28a29 "

There is no foreign demand for breadstuffs, and sales are dull at quotations. Wool is unsettled—the manufacturers are making but few purchases, in consequence of the influx of foreign cloths.

#### DURHAM CATTLE FOR SALE AT AUCTION.

THE subscriber having purchased of Mr. JAMES GOWEN, his numerous herd of Short Horn Durhams—the character of which is too well known to require comment—and being desirous of adopting, for the benefit of his pupils, a more general system of culture than is practical with the keeping of so large and increasing a stock of cattle, will sell some twelve or fourteen head, at public auction, on Wednesday, the 12th of July 1848, at the Rising Sun Hotel, on the Germantown road, near Philadelphia.

The stock to be sold will consist of Cows with calves by their sides, Cows in calf, all good aged—principally young. One very fine bull, four years old. Yearling and two years Heifers, and bull and heifer calves from five to eight months old.

Descriptive Catalogues given at the sale, which will be positive and without reserve.

Mount Airy Agricultural Institute, } JOHN WILKINSON.  
 Germantown, May 28th, 1848. }  
 July 1—11.

#### Answers to Inquiries.

**OYSTER SHELL LIME**—"HAMPTON," MASS.—This article is worth in Albany, six cents per bushel, fresh burnt.

**PEAR TREES**—"H." We are not apprised of any special advantages that would follow from taking pear trees at Rochester instead of Boston, for your location, unless better trees could be had at the former place.

**CULTURE OF THE BLACKBERRY**—"J. W. J.," Philadelphia. We have no better information in regard to the culture of the blackberry, than that given by "W. H." page 151, current volume.

**CULTURE OF HOARHOUND**—"J. B. T.," Wayne Co., N. Y. Hoarhound is cultivated at the "herb establishments" in this vicinity. We are unable to state the amount of profits it yields per acre, or the mode of preparing for market. These facts could probably be obtained from the "United Brethren," called Shakers.

**RED TOP GRASS**—"S. J. W.," Murfreesboro' N. C. Red top is adapted to a moist soil, and we should think would suit the mountain region of North Carolina.

**INFLUENCE OF BRICK-YARDS ON FRUIT TREES**—"R. D. T.," Oswego. We are not aware that any new light has appeared in regard to the effect on trees of gases arising from brick yards. We see no reason to believe, however, that the ordinary blight of fruit trees has any connexion with that cause.

#### SALE OF STOCK AT BUFFALO.

I WILL sell at the State Cattle Show in September next, at Buffalo, about 30 thorough bred Short horns, consisting of cows, young bulls, heifers, and calves.

Also, 30 thoroughbred Durhams of like description.

Also, 30 " Cotswold Sheep, (long-wooled) ewes & rams.

30 " Southdown Sheep, (middle-wooled) of same

sexes. Catalogues and pedigrees of the stock will be on the show grounds where the animals will be exhibited.

The character of my stock is generally known—and I shall offer it all indiscriminately to the public, making no reservations for my own use.

Black Rock, June 13, 1848—21.

LEWIS F. ALLEN.

#### ANNUAL SALE OF BUCKS,

Near Delaware City, Delaware.

CLAYTON B. REYBOLD begs to inform the public, that he will offer for unreserved sale, at auction, on Wednesday, 2d of August next, TWENTY-FIVE LONG-WOOLED NEW OXFORDSHIRE YEARLING BUCKS, which he believes superior in all points to those disposed of at his former sale.

The subscriber would also remind the public, that the New Oxfordshire Buck, which took the first prize for the best Long-wooled Snee at the Saratoga Meeting, in the fall of 1847, is the sire of the Bucks intended for sale.

C. B. REYBOLD will be pleased to see any gentleman who will favor him with his company.

Sale to commence a 2 o'clock.

Marsh Mount, June 8th, 1848.—11.

#### SCIONS FOR BUDDING,

At low prices,

FOR Sale by J. J. THOMAS, at his nursery in Macedon, including most of the varieties of apple, cherry and peach, all proved by bearing, at \$2 to \$5 per thousand buds, where quantities are taken, and an additional discount on large orders. Several new varieties of fruit furnished in smaller quantities at moderate rates. Bundles packed for sending by express, so as to keep fresh a week. Applicants stating the varieties and quantities wished, will be furnished with distinct prices. All communications to be post-paid, and orders to be accompanied with remittances, or satisfactory references.

Address, J. J. THOMAS, Macedon, Wayne, Co., N. Y.  
 July 1—21.

#### IMPROVED STOCK FOR SALE.

THE subscriber will take orders and execute them in the best possible manner, for—

Durham, Hereford, Devon and Ayrshire cattle. Price from \$50 to \$300 each, according to age and quality.

Saxon, Merino, Southdown, Leicester, and Cotswold sheep. Price from \$10 to \$30 each.

China, Sussex, Berkshire, and Lincoln pigs. Price per pair at three months old for the three first mentioned breeds, caged and delivered on board ship, \$20. Price of the Lincolns, \$30 per pair. These last are of a recent importation—color white, and grow very large.

All orders must be accompanied with the cash.

SAMUEL ALLEN,  
 189 Water-street, New-York.

mjulysept.

## DURABLE PAINTS.

**RICHARD DALLY**, Painter, No. 1 Burling Slip, New-York, has commenced the preparation of Paints and Oil for sale, with especial reference to durability. Twenty-three years experience enables him to adopt invariably, the only means by which permanence is secured.  
July 1—11.

## FARM FOR SALE AT A BARGAIN,

**CONTAINING** Two hundred and thirteen acres, six miles west of Batavia, Genesee county; one hundred and sixty acres under good improvement; balance about equally divided in good rail and hard timber, with good sugar orchard. Soil good for grain or grass. Three large barns with stabling attached for fifty horses.—Story and half house, kitchen and wood shed attached. Buildings all nearly new and in good condition. Ten per cent. down, the balance can remain on a long credit. For any further information, address, (post paid,) **H. HUNTER**, Rochester City, N. Y.  
July 1—ju. & sept.

## FOR SALE.

**THE LINNEAN BOTANIC GARDEN & NURSERY.** Late of **WM. PRINCE**, deceased, *Flushing, L. I., near New-York.* **WINTER & Co.**, Proprietors. In consequence of the decease of his Son and Partner, and of the advanced age of the Subscriber, he offers for sale this ancient and well known Nursery, densely stocked. Its location, celebrity for more than fifty years; established business; extensive variety of fruit and ornamental Trees, Shrubs and Plants, as well for immediate as future sales; stock of specimen Trees, &c., to propagate from; extensive greenhouses, dwellings, and other conveniences for conducting the business, all in high order; the beauty of the village, and its vicinity to the city of New York, with which there is communication several times a day by Steamer and Stages; afford very superior advantages to any person disposed to pursue the business.

The execution of Orders will be continued—Descriptive Catalogue gratis on application, post paid.  
**GABRIEL WINTER.**  
July 1, 1848.—21.

## MOUNT AIRY AGRICULTURAL INSTITUTE.

**THE** subscriber having rented the **MOUNT AIRY FARM**, the late residence of **James Gowen, Esq.**, with all its extensive and eligible appliances for the purposes of a *Farm School* removed his school, the *Duchess Agricultural Institute* of *Duchess Co., N. Y.*, to the above place, where he opened for the summer term on the first Tuesday of April last.

The winter term will commence on the first Thursday of October. This farm, which is located on the Germantown road, 7 miles from Philadelphia, Pa., having been so long known as the model farm of the United States, the site being proverbially beautiful and healthful, a minute description is deemed unnecessary; suffice it to say, that it presents every inducement and desirable facility for the establishment and maintenance of an Experimental, Practical and Scientific Agricultural Institute.

The course of instruction will be such as to give the students every facility for acquiring a thorough knowledge of Scientific and Practical Agriculture, with the use of the best modern farm machinery and implements, together with a select farmer's library, including numerous Agricultural Periodicals. Instructions will also be given in all the collateral branches requisite to insure the great desideratum which it was the object of the founder and Principal to supply by an education commensurate with the exalted destinies of a landed interest.

Chemistry and the other Natural Sciences receive particular attention—lectures with full experimental illustrations being connected with each course. The Zoonic course will commence with the Horse, a perfect skeleton of which being provided for illustration.

The best facilities are also afforded, that those who desire may here acquire a Commercial Education, to the end that they may lay the foundation in youth of a future life that shall be agreeable, healthful and useful.

Fee for the year, \$200, payable semi-annually in advance. This sum includes Tuition, Board, Washing, Fuel and Lights. An extra charge of \$12 00 per annum will be made for pupils not furnishing their own bedding and toilet furniture. The modern languages \$10 each extra per term, as also for drawing.

This Institution is under the patronage of the American Agricultural Institute, the Farmer's Club of the American Institute, and the *Duchess Agricultural Society*.

For further particulars address **JOHN WILKINSON**, Principal of the Mount Airy Agricultural Institute, Philadelphia, Pa.

## REFERENCES.

**Jas. Gowen, Esq.**, Philad., Pa.,  
**Robert Ewing, Esq.**, do.  
**Zebadec Cook, Esq.**, N. Y.,  
**Thos. McElrath, Esq.**, do.  
**J. D. Willard, Esq.**, do.  
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July 1—11.

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**FARMERS** in want of good Horse Powers and Threshing machines, will find them at the Albany Agricultural Warehouse and Seed Store. For description and recommendations, See Feb. No. of Albany Cultivator, for 1847 & 1848—also May No., 1848. Descriptive Catalogue gratis.

## SALE OF SHORT HORNED CATTLE.

**I WILL** Sell at Buffalo, during the days of the State Fair, on the 5th, 6th and 7th September next, under the directions of the Officers of the New York State Agricultural Society, Twenty to Twenty-five thorough bred Short Horned Cattle, consisting of Cows, Heifers, and young Bulls. A catalogue with their pedigrees will be ready at the time of the fair.

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Auburn, May 16, 1848.—41

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June 1, 1848.—31

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June 1, 1848.—31\*

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**B. P. JOHNSON**, Esq., Sec., [N. Y.;  
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Kinderhook, N. Y., June 1, 1848.—3m

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April 1—11.

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Hudson, May 9, 1848—5t\*

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As the Editor of that excellent agricultural paper, the Boston Cultivator, and other kindred works, Mr. Cole has shown himself well qualified for the compilation of this work. We have known him for years, and he has proved himself to be one of the most persevering and able of our agricultural editors. We understand his new book has already had a free and extended sale. Many times its price to almost any farmer, may be saved in its purchase.

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For sale at the office of "THE CULTIVATOR."

June 1—3t.

### SHORT-HORN DURHAMS FOR SALE.

**THE** subscriber has a few young thorough bred Durhams on his farm two and a half miles from Troy, which he offers for sale, viz: 1 two year old bull—1 yearling bull—2 do. about eight months old—6 yearling heifers—2 two year old do.—and a few spring calves, bulls and heifers. These young animals were all got by my imported bull Duke of Wellington and my premium bull Meteor. Meteor was got by bull Duke of Wellington, out of my imported Duchess heifer.

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Troy, May 1st, 1848—4t.

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March 1—5t\*.

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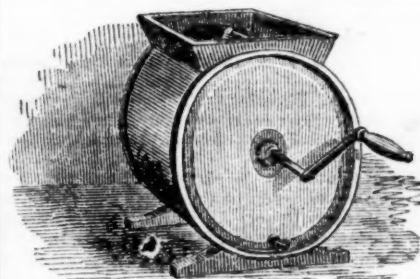
April 1—4t.

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May 1, 1848—6t.

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June 1, 1848.

H. L. EMERY.

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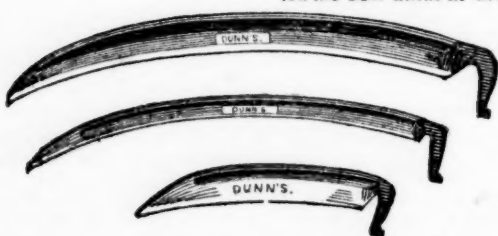
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HORACE L. EMERY,  
July 1, 1848.

## THE HORTICULTURIST,

*Journal of Rural Art and Rural Taste.*

EDITED BY A. J. DOWNING, Esq.

THE THIRD VOLUME OF THE HORTICULTURIST commences on the first of July, 1848.

The Publisher, at the close of the 2d volume, desires to return his thanks for the handsome patronage bestowed on this work. It has already attained a circulation equal to that of any similar magazine in Europe, and far beyond any of its class hitherto attempted in America. Its influence on the progress of Gardening, and the information in matters of Rural Taste, is already strikingly apparent. Its extended and valuable correspondence, presents the experience of a large body of the most intelligent cultivators in America; and the instructive and agreeable articles from the pen of the Editor, make it equally sought after by even the general reader, interested in country life.

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This magazine is printed and illustrated in beautiful style, at Albany. As to its character in other respects, it is sufficient to say that it is conducted by A. J. DOWNING, the most distinguished writer in the Union, on all topics connected with horticulture.—*Cincinnati Gazette.*

We strongly recommend this excellent and useful work to all who are attached to rural pursuits, either for amusement or for profit.—*Montreal Gazette.*

Every one at all ambitious of keeping up with the improvements of the day, in gardening, should subscribe for this Journal.—*New-Orleans Com. Times.*

We have found much pleasure in assuring ourselves of just what we anticipated of the work in such hands, a desideratum for the advancing taste of the country in horticulture and rural architecture, to which the work is chiefly devoted. No person, perhaps, combines more harmoniously the scientific and the practical than the originator of this work.—*New-York Observer.*

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All business letters to be addressed to the Proprietor, LUTHER TUCKER, Albany, N. Y., and all communications to the Editor, A. J. DOWNING, Newburgh, N. Y.

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